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U.S. Department of the Interior
Fish and Wildlife Service
Portland, Oregon

California's Important Fish and Wildlife Habitat

AN INVENTORY

September 1980

PREFACE

The California landscape has long been touted for its rich lands and diverse life forms. Early immigrants were awed by the misty redwood-shrouded estuaries, the yellow bunchgrass prairies, the expansive creosote bush deserts, and the coniferous blanketed Sierra. Early naturalists beheld skies darkened by flocks of waterfowl, prairies and oak woodlands alive with deer and elk, galleria forests a din of migrating songbirds, and streams choked with spawning salmon.

The mosaic of overlapping plant and animal communities represented the culmination of millions of years of adaption to the physical and biological environment. Organisms coevolved as integral parts of biotic systems; each species depending to some extent on the presence of the others. These delicately balanced systems were adapted to environmental change; thus while less fit species were periodically weeded out, the basic associations remained functionally cohesive. But there are limits to the resilience of even tenacious ecosystems. Man - nature's most persistent tinkerer - has driven nature beyond these limits.

California's rich promise has long acted as a magnet to dreamers, laborers, and seekers of the good life. Many millions have come. And amid the decades of unrestrained growth, only relict islands of nature have managed to evade the earth movers, the chainsaws, and the tractors. Cattle now graze on alien grasses; once virgin forests grow genetically manipulated trees; riverine systems sport concrete levees and dams; and deserts are a crazy-quilt pattern of tire tracks. It is a curious irony that a citizenry should appear so hell-bent on destroying values they profess to hold in such esteem.

Two justifications for preserving natural areas stand out, although there are many others. First, the foods we eat have been developed from wild strains of plants and animals. In the future, where will we find wild genetic stock and the natural predators to battle their pests if not from natural areas? And at a more basic level, man himself is a child of the forest and savanna. Although we make our homes in crowded cities, is it a coincidence that we scurry back to nature to recharge our batteries? We are, lest we forget, somewhat misplaced members of the natural world.

In light of all this, the identification and preservation of the few remaining natural ecosystem representatives takes on special significance. In order to protect the many life forms which we presently enjoy and in the future may need, we must be willing to save the ecosystems within which they live. For like

man separated from his culture, individual species become interesting but somewhat meaningless curiosities when removed from their natural element.

The following is an inventory of many of these most important areas. Each possesses the common denominator of biotic wealth and an uncertain future. Several have regrettably been destroyed during the compilation of this report; others have been permanently protected. It is our objective to expose these unique areas to public scrutiny so that their fate may be decided in an informed manner; it is our hope that this effort will result in many of them being protected in perpetuity.

INTRODUCTION

The U.S. Fish and Wildlife Service has compiled a state-by-state inventory of sites known to possess high wildlife values. In California, this action was accomplished through the cooperative efforts of numerous Federal, State, and local agencies, as well as private conservation groups and concerned citizens.

In order to acquaint the reader with the kinds of ecosystems being considered and the problems confronting them, a brief summary of California's natural and human environments is presented. Next, the role played by resource agencies and conservation groups in protecting representatives of these ecosystems is considered. The objectives, methods of identification and evaluation, and anticipated use of this report is then discussed. This is followed by a ranking of each site identified by this inventory in the order of its importance to the overall protection of native plants and animals. The remainder of the report discusses the specific biological merits of and the specific threats to each site.

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OBJECTIVES, METHODS AND RESULTS

Objectives

The objectives of this report are to inventory relict areas of high floral and faunal value and to identify the types of threats each is encountering. These areas represent enclaves of plant and animal communities which have either always been rare, such as coastal salt marshes, or have been carved up by man into disjunct habitat islands, such as riparian forests.

The areas most sought after are those which have the full complement of animals, plants and physical features thought to represent an ecosystem or representative thereof. The mutual dependencies built up through coevolution must be respected and protected intact if there is to be any hope of sustaining the living elements in perpetuity. Thus, the vanguard of the species preservation effort must be aimed at the maintenance of viable ecosystem units.

It is not sufficient to merely locate the best example of the established type habitat for a sensitive species; it is necessary to identify areas which are actually still inhabited by the organism. Often, due to human disturbance or historical causes, wildlife are not evenly distributed over their home range; rather they occupy hot spots or nodes of population concentration. These wildlife nodes have been the focal point of this inventory.

The threats to the continued existence of these areas are identified when known. All are the result of human activities. This is not to say that the activities themselves are necessarily wrong. We must have products such as wood, food and water in order to survive. However, in most of the following situations, the preservation of the natural values are considered of greater accumulative benefit to mankind than the benefits accrued from alternative land uses. These areas should thus be considered strong candidates for complete protection.

Methods

In order to acquire the maximum amount of natural areas information with a minimum expenditure of time and money, and so that research completed by other agencies, programs and persons would not be duplicated, previously documented data were solicited from a wide variety of sources. Nomination forms requesting biological,

geographical and sociological information concerning important ecosystem representatives were distributed to universities, colleges, conservation groups, Federal, State and local resource agencies, and interested persons. It is believed that the majority of persons who could have been of assistance and were willing to sacrifice the time in this effort were contacted (Appendix I).

The completed nomination forms ranged in value from very sketchy to quite detailed analyses. Follow-up discussions with the nominators were conducted, and most but not all of the sites were field checked. Also, stated biological elements, such as the presence of sensitive species, were cross-checked with other acceptable sources of information for verification.

In order to establish protection priorities, an objective evaluation system was developed. Its purpose is threefold: to separate the evaluators personal prejudices from the evaluation; to give the process something more than subjective credibility; and to consider the submitted information in a systematic manner.

The ranking system was developed using concepts and criteria from other evaluation systems and adjusted in light of Fish and Wildlife Service objectives. While all so-called objective evaluations are based on potentially invalid concepts and definitely inadequate data, the necessity to generate priorities, so that informed decisions can be made, must negate any seeming inadequacies in the system.

Three types of information were used to rank the areas: wildlife value, habitat value, and ecosystem defensibility. Wildlife ranking was a function of the presence of endangered, threatened, or rare species, as well as abundance and richness of species. Habitat was ranked relative to its abundance on a state-wide level. And defensibility involved a consideration of the site's potential for long-term protection in light of areal coverage, natural buffers and type of nearby disturbances.

Results

Using the aforementioned identification and evaluation methods, ecosystem representatives have been identified and numerically ranked in order of priority for protection. Contributing agencies, organizations and persons are listed in Appendix I. The sites, while all having some natural assets, run a gradient from extremely valuable and threatened on a scale of national significance to areas of local concern. A large percentage of the species known to be in serious danger of extinction - immediately or in the future - are found at one or more of the sites (Appendix II). A concerted

effort to save these few areas would go a long way towards solving California's critical wildlife problem.

It is anticipated that through increased visibility, greater degrees of protection can be afforded these sites as opposed to those less biologically valuable. In its continuing effort to encourage protection of these sites, the Fish and Wildlife Service will be exploring the following alternatives of protection, where appropriate:

1. Leasing
2. City and County zoning
3. State and/or County regulatory change
4. Acquisition by agencies and organizations other than the FWS
5. Land withdrawals and/or development rights
6. Donations of land and/or development rights
7. Protection through Federal and State permit issue
8. Designation(Federal lands) as a Wilderness, Primitive Area, Wild and Scenic River, Area of Critical Environmental Concern or other protective designation
9. Incorporation into National Forest Service, BLM, and other State and Federal resource agency comprehensive land use plans
10. Purchase and/or lease of grazing, water, timber, mineral and other severable rights
11. Tax incentives for agricultural land and/or open space preservation
12. Fee simple acquisition
13. Acquisition of a negative easement(development rights)
14. Acquisition of a positive easement(use rights)

THE CALIFORNIA ENVIRONMENT

California is more of a region than a state. Its great size, physiographic and biological diversity, and human inter-relations contribute to make a complex array of ecosystems. The following overview will briefly summarize this protean region in terms of its natural and human environments, and the threats that the latter exerts upon the former.

Natural Environment

The diversity of the California Wildlife Province is a result of a myriad of interrelating environmental and historical factors. Its size, 158,693 square miles, ranks it third among the 50 states, while its 1,264 miles of coastline (nearly 10 degrees latitude) ranks it second only to Florida. This large land mass is geomorphically a product of the collision of the Pacific and North American Continental Plates, causing the surface to be stretched and compressed into a very irregular landscape. Superimposed upon this surface is a Mediterranean climatic regime, characterized by cool, moist winters and hot extremely dry summers punctuated by localized fog regimes. Added to and partly dependent upon these factors are the varying soils, habitats and wildlife components.

For purposes of generalization, the state has been categorized into principle biotic regions with some of the expected wildlife components (see Figure I). While many species of wildlife may not be defined by a single habitat type, enough of the threatened species are known to be obligate inhabitants of a single plant association to justify this approach.

1)Coniferous Forest. These ecosystems, comprising approximately 21% of California's areal coverage, are largely restricted to the Sierra Nevada Cordilleran, the Klamath-Siskiyou Mountains and the northern coastal lowland fog belt. Dominant trees, such as redwood, fir, spruce, pine and Douglas fir are adapted to low evapotranspiration rates. These conditions are provided in the mountains and in the cool, fog belt through amelioration of the Mediterranean regime.

The largely north-south distribution of coniferous forests in California accounts for the annual migration of many timberland species. Characteristic boreal species are Clark's nutcracker, Stellar's jay, spotted owl, mountain chickadee, porcupine, bobcat, spotted skunk and brook trout.

2) Oak-Conifer Woodland. These various deciduous and coniferous habitats comprising nearly 14% of the state are located largely in the foothills of the Sierra Nevada, forming an ecotone between the valley grasslands and the coniferous forests. The dominants of these communities include both live and deciduous oak, several species of pine with an understory of grasses and forbes. These habitats, occurring from sea level to perhaps 4,000 feet, are adapted to relatively high drought stress and can quickly regenerate after fire. Some of the common wildlife of these environs include acorn woodpeckers, rattlesnakes, mule deer, gray fox and red bats.

Oak-Conifer habitats are largely used for grazing, their value as wood products being limited. Oak forests have probably received little attention because many of their wildlife species are able to adapt to other habitats. At this time, very few oak dominated reserves have been established in California, one exception being the Starr Ranch, maintained by the National Audubon Society.

3) Grasslands. This once extensive native Central Valley habitat, covering 22% of the state, has been almost completely extirpated by exotic species introduction and agricultural, urban, and commercial expansion. It is estimated that only 1/2 of 1% of the original native grassland remains still intact.

The composition of this relict habitat was predominantly perennial bunchgrass. Now, grasslands largely consist of annuals such as wild oats and Italian ryegrass. All of these grasses are adapted to periodic fire and summer drought. However, only the introduced annuals are able to withstand heavy grazing pressure, which was not a major factor in the unsettled California ecosystems. Among the wildlife characteristic of these grasslands are king snakes, gopher snakes, western skinks, great horned lizards, horned larks, burrowing owls and San Joaquin kit fox.

Native grasslands are also the most underprotected habitat in California.

A particularly unique ecosystem occurring within the grassland complex are vernal pools. These ephemeral wetlands, sustained by clay-pan soil horizons, occur extensively only in California and South Africa. The plants, which are adapted to conditions of submergence and then complete dehydration, have extreme rates of endemism, approaching 90%. Cultivation is quickly eliminating these microhabitats; only 2 pool areas are presently protected in California.

4) Chaparral. This unique habitat, covering approximately 10% of California, consists of evergreen shrubs with thick, cutinized, sclerophyllous leaves. This very dense habitat occurs only in the true Mediterranean climatic regions of the world and is adapted to annual fires and extreme summer drought. In California, chaparral is best developed in the southern part of the state in foothills

ranging from 300-3,000 feet. Chaparral sometimes forms the ecotone between coastal scrub and oak woodland communities. Among the wildlife characteristic of these unusual communities are red diamond rattlesnakes, California boas, green-tailed towhees, California roadrunners, mountain quail, California pocket mice, graceful kangaroo rats, and western mastiff bats.

Relatively little attention has been directed at protective efforts for chaparral areas. Thus, very few chaparral reserves exist, an exception being the Elliot Chaparral Reserve, maintained by the University of California Land and Water Reserve System.

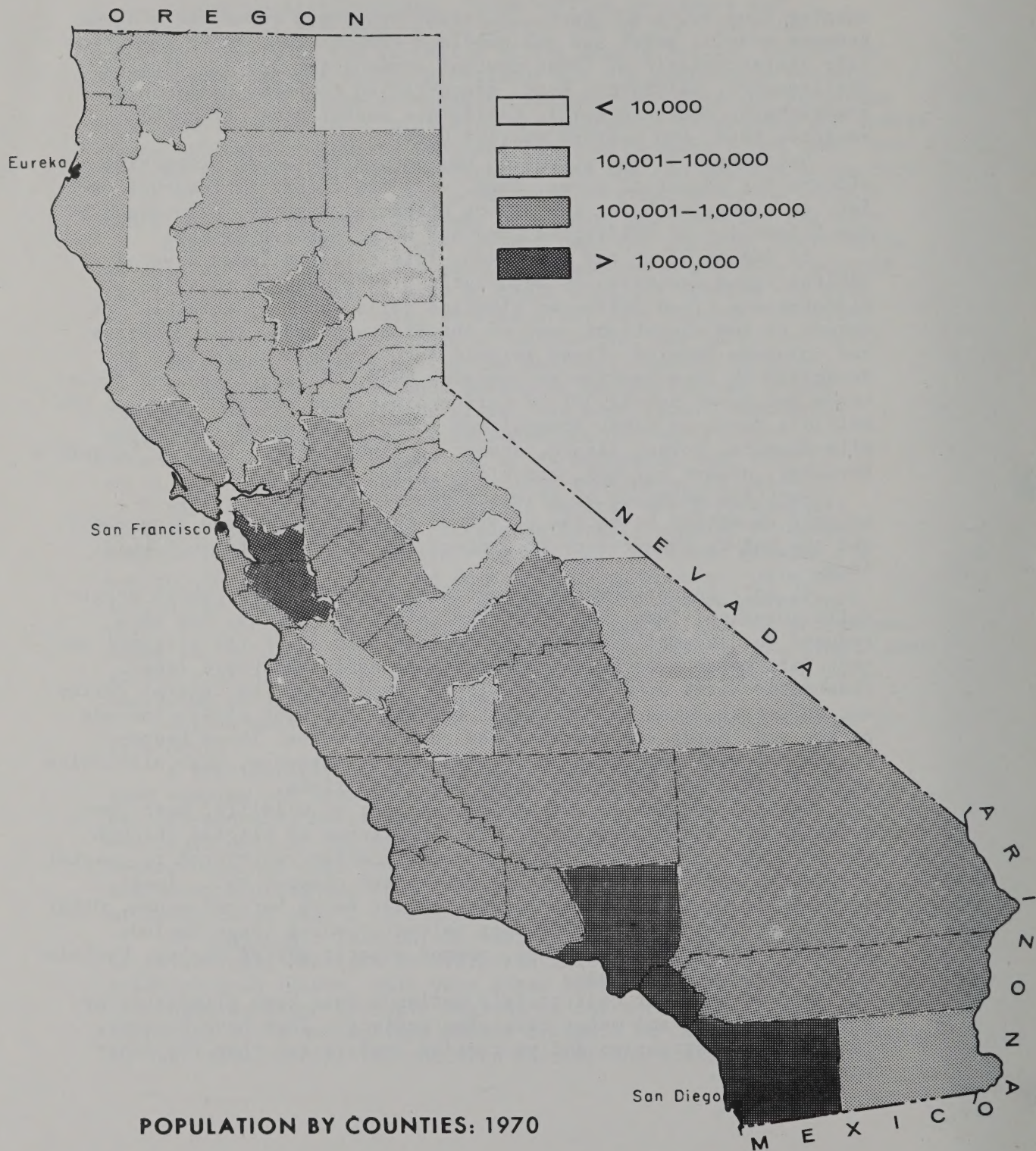
5) Desert Scrub and Sagebrush. This category lumps several habitat types dominated by xerophytic plants adapted to arid climates and often saline or alkaline soils. Much of this habitat occurs at low elevations east of the Sierra Nevada, in the Mojave and Colorado Deserts. These largely level, open associations are dominated by such species as creosote bush, big sagebrush and yucca trees and cover nearly 33% of California's land surface. Some of the wildlife found in these communities include the desert tortoise, gila monster, horned lizard, desert pupfish, prairie falcon, LeConte's thrasher, desert kit fox, and black-tailed jackrabbit.

Very few examples of pristine desert ecosystems exist, a notable exception being the effort of the Bureau of Land Management and the Nature Conservancy to protect the Desert Tortoise Natural Area.

6) Salt and Freshwater Marsh. Salt marsh habitat, which originally comprised less than 1% of the California region, has been reduced through man's activities to less than 30 of its original extent. Salt marshes occur along estuaries and inland playa lakes. Freshwater marsh once occurred widely throughout the Central Valley and at remote sites in the desert regions. Dominant plants include pickleweed, cordgrass, cattail, bulrush and tules. These hydrophytes are variously adapted to periodic submergence, high alkalinity and salinity, and often anaerobic soil conditions.

Wetland habitat is extremely important to wildlife, both consumptive and non-game species. This importance is elicited through the high number of Federally Endangered species restricted to coastal salt marsh environs, including light-footed clapper rail, least tern, California clapper rail and the salt marsh harvest mouse. Other species occurring in fresh and/or saltwater marsh areas include pintails, osprey, striped bass, common aquatic garter snakes, Pacific pond turtles and tule elk.

The majority of California's wetlands have been eliminated by diking, filling, and water diversion projects. They have, however, received more attention and protective legislation than the other rare habitats.



7) Riparian. This habitat will be defined as the arboreal fringe of the many watercourses in California. Floral dominants include cottonwood, willow, oak, and walnut. These phreatophytes are adapted to a high water table, clayey soils and periodic flooding. While riparian habitats historically occurred throughout California, recent estimates show this habitat reduced to only 1% of its former coverage; refugia occurring along the Upper Sacramento River and the South Fork of the Kern River.

Riparian habitat is paramountly important to wildlife for several reasons: 1) the north-south orientation allows a wildlife migration corridor; 2) several species, e.g. yellow-billed cuckoos, are completely dependent upon dense riparian stands for successful nesting; and 3) the dominance of coniferous over deciduous habitats in California leaves few alternative habitats for deciduous insectivorous birds. Some of the wildlife characteristic of this association include Bell's vireo, great blue heron, red-shouldered hawk, wintering southern bald eagle, beaver, muskrat, Mexican free-tailed bat, steelhead trout and California slender salamander.

While few riparian sites are presently protected, public and private awareness of the problem is resulting in increased protection efforts. The California legislature has recently passed a Riparian Study Bill; this to inventory and make recommendations for the protection of riparian habitats. An example of a protected riparian area is the Woodson Bridge Nature Preserve maintained by the California Department of Parks and Recreation.

Human Environment

The California Region has greeted three successive waves of human migration. For thousands of years, hunting and gathering tribes lived in apparent harmony with the checks and balances of the natural ecosystems. Later, in the 18th and 19th century, Spanish settlers introduced their culture and cattle to the coasts and grasslands. Finally, with the termination of the Mexican War and the discovery of gold in 1849, the massive immigration of Anglo-Americans began.

A. Population.

California's population trends have subsequently reshaped much of the landscape. Its total population of 21 million plus ranks California as the nation's most populous state. Future population estimates show California bulging to nearly 30 million soon after

the turn of the century. Thus, California will account for approximately 12% of the total U.S. population (see Figure 2).

The direct effects of the burgeoning population are most visually obvious in the Los Angeles Basin. Here, unrestrained residential development has proceeded in every direction from the downtown area. One can now journey from 20 up to 50 miles in any direction and still be surrounded by the Los Angeles urban area. The low density per acre of this and other California cities is greatly attributable to their growth during the automobile age.

The negative effects of the growing population are most obvious in coastal areas. Coastal wetlands, for example, have been greatly reduced due to dredging and filling operations for commercial, industrial and residential development. This reduction of acreage to approximately 30% of its original extent has resulted in several of its vertebrate components being in danger of extinction. The other coastal habitats, including freshwater wetlands, chaparral tidepools and others are equally threatened by the increasing population pressure.

B. Forestry.

Human use of forests, particularly coniferous forest, has been intense. Historically, logging activities have centered in the redwood forest, where high standing biomass per acre and relatively easy transport guaranteed a profitable return. Consequently, less than 10% of the virgin redwoods are still standing. With the increasing ease of log transport and declining redwood resource, Douglas fir and several species of pine have become important wood products.

The threat to wildlife from present forestry practices are manifold. In California, the annual cut rate for timber currently exceeds the growth rate by 2.5%. Thus, coniferous habitat is still being lost without replacement. Also, certain long-lived species are not being replaced in their native areas. Redwood, for example, are being replaced by faster growing Douglas fir. Pesticides and herbicides, which are known to be toxic to many species of wildlife, are still actively used. Finally, and perhaps most important in respect to forest wildlife, old growth forests are simply not being allowed to exist within an economy that demands harvest at the point of diminishing returns. Forests are thus to be maintained in a constant state of succession; wildlife adapted to climax stands are consequently becoming increasingly rare.

C. Agriculture.

California, while an urban state in many respects, generates more income from agricultural products than any other state. From the decline of gold mining in the 1800's until the last few decades, agriculture was the dominant factor in California's population increase.

California's agricultural evolution roughly followed 3 stages of development: 1) grazing of sheep and cattle; 2) dry grain farming; and 3) irrigated crops. While all of these stages are represented in current farm practices, the "public works era" of the 1930's and more recent water distribution and land reclamation projects have largely transformed California's agriculture to an irrigation base.

The Great Central Valley represents the heart of the agricultural belt. Such commodities as grapes, cotton, almonds, rice and several winter vegetables dominate the market. Many of these crops only grow in California's mild winter climate and are thus important export items.

The effects of intensive agricultural activities on the Great Central Valley native habitats have been devastating. Once this perennial bunchgrass ecosystem covered 22% of California; it now covers less than 1/2 of 1%. The combination of cultivation, overgrazing, and exotic weed introduction have been largely responsible for this demise. Historically, such species as tule elk and pronghorn antelope grazed these habitats. They have, however, been largely eliminated from their natural range along with the bunchgrass prairie.

Other habitats have been adversely affected by agricultural practices. Oak woodlands, which still cover large portions of the Sierra foothills, are subtly being eliminated through overgrazing and residential development. consequently, few oaks less than 100 years of age can be located. This is also the case in deciduous riparian habitats. Here again, while the upper canopy appears healthy, closer scrutiny reveals a lack of young trees. Thus, even with 99% of riparian habitats having already been eliminated by agricultural conversion the last remaining remnants may be lost through lack of regeneration. A final threat to these relict riparian areas is a result of bank protection projects, which sacrifice native vegetation for the sake of bank stabilization.

D. Recreation.

Recreation is an important aspect of the California life style. The beaches, mountains and deserts have long acted as magnets to outdoor enthusiasts. These plus the temperate climate have attracted both new residents and seasonal tourists.

While many recreational activities are compatible with wildlife preservation, the recent upsurge of motor-powered means of recreation is having devastating effects on wildlife. Foremost among these are off-road vehicles (ORV's) such as dirt bikes and dune buggies. Use by ORV enthusiasts is increasing at an alarming rate in the Mojave Desert. Entire hillsides are being stripped of vegetation by repeated compaction. Desert soils, which are very thin and fragile, are quickly disrupted and either blown or eroded away. Recent studies have noted declines in wildlife of 60-75% in ORV areas.

Other activities are threatening the last vestiges of native habitats. Public works projects are eliminating free running rivers. Air pollution emanating from the Los Angeles Basin is harming some Sierra subalpine forests. Groundwater pumping and exotic fish introduction in desert springs are eliminating endemic fishes, the extinction of the Tecopa pupfish being an example. The diversion of water sources from Mono Lake to Los Angeles is destroying this scenic and faunally rich area. Expanding residential and resort development is threatening the Lake Tahoe area.

These are only a few of the deleterious factors affecting California's natural heritage. Following is a discussion of current efforts to save some of these types of areas.

Present Avenues of Ecosystems Protection

California's diversity is not limited to natural phenomena. There are probably more public agencies, universities, private organizations and persons dedicated to the perpetuation of natural values than occur in any other state. California is becoming a state where environmental awareness is quite keen; few really valuable ecosystems are destroyed without some form of public outcry.

Following is a summary of the function of those agencies and organizations, both public and private, which are attempting to protect various aspects of the native landscape. No value judgments are imposed on each agency's abilities or objectives in protecting wildlife and/or habitats. Finally, while numerous agencies participate in land use planning and the implementation of resource protection statutes, only those agencies specifically charged with fully protecting sites for their natural values are discussed.

Public Agencies: Federal

A. United States Forest Service.

The Forest Service is the most important agency involved in the protection of forest and alpine ecosystems. The Forest Service has been engaged in the process of classifying its roadless areas as either potential wilderness or multi-use lands. The decisions made as a result of the Rare II Survey will have far reaching effects on the future of California's coniferous forest habitats. Another program carried on by the Forest Service, as mandated by Section 251-23 of Title 36 of the Code of Federal Regulations, is the designation and protection of Research Natural Areas. The objective of this program is to systematically protect examples of all the native forest types native to (in this case) California.

Worth noting is that the United States Forest Service, in its various protective programs, is not actively seeking areas to preserve outside of its currently held lands.

B. Bureau of Land Management.

The Bureau of Land Management, like the Forest Service, has provisions for the establishment of Research Natural Areas; these to be used specifically for research and education. Areas of high natural value have been withdrawn for Natural Area status and many may become officially designated.

Another potential wildlife protective activity is the designation of wilderness areas within present holdings. While roadless area proceedings are just beginning, the potential long-term effects on arid land environs by these designations are significant.

Finally, the Bureau does have the authority to purchase privately held lands under the Organic Act (P.L. 94-579), using Land and Water Conservation Fund (LWCF) monies. These areas must, however, be "primarily of value for outdoor recreation purposes". While there are guidelines under the Organic Act for the acquisition of private lands for their biological values, these acquisitions must come from Bureau appropriations rather than LWCF money.

C. National Park Service.

The National Park Service, as mandated in the National Park Act of 1916, acquires land often of high biological and pristine values. This agency is, however, directed to preserve land for its recreational rather than biological value. The funding source is both through Congressional legislation and the LWCF.

Certain National Parks have delineated areas for designation as Research Natural Areas. There is apparently no legal mandate for this designation, and park superintendents are responsible for recommending such areas within their jurisdictions. There are presently 13 designated Research Natural Areas in California.

D. United States Fish and Wildlife Service.

The Service has three programs through which biological habitats are protected: Ecological Services, the Migratory Bird Land Acquisition Program and the Endangered Species Program.

The Division of Ecological Services has the responsibility of identifying to public agencies or private agencies under Federal permit or license, the adverse impacts of proposed water resource development projects and further to make recommendations to those agencies for the conservation and, where appropriate, the enhancement of fish and wildlife resources (Sec. 2 FWCA). Frequently, such recommendations result in conservation lands that are ultimately managed as National Wildlife Refuges, retained by the construction agency and administered as project lands dedicated to wildlife purposes, or developed and preserved by private agencies in perpetuity or for the life of the project.

Under the Migratory Bird Program, wetland habitats for wintering waterfowl have been identified and ranked relative to their biological values and threat factors. Highly ranked wetlands are then protected through either fee title or easements as monies are made available through the sale of Federal Migratory Bird Hunting and Conservation Stamps. The acquisition of these flyway islands is very important to the maintenance of wetlands species.

The Endangered Species Program, as authorized by the Endangered Species Act of 1973 and its amendments, is directed to list those plant and animal species considered to be in imminent danger of extinction. Critical habitats found necessary to the continued existence of the species may not be negatively impacted on Federal lands or by Federally funded projects and, in extreme circumstances, may be acquired and added to the National Wildlife Refuge System.

Public Agencies: State

A. California Department of Fish and Game.

The California Department of Fish and Game is involved in a number of programs which beneficially affect the wildlife resource. The program most appropriate to a discussion of the protection of

important habitats is the Ecological Reserve Program. The Ecological Reserve Act was established:

"...for the purpose of protection of rare endangered wildlife or aquatic organisms or specialized habitat types; gives authority to the Department of Fish and Game to acquire by purchase, lease, gift or otherwise land and water to be set aside as Ecological Reserves."

Under this mandate, several important habitats have been protected exclusively for their wildlife values. The funding source for this program is variable. The upper Newport Bay Ecological Reserve, for example, was purchased with funds received from a legal settlement with an oil company over a massive oil spill. Other acquisitions have been enacted with money from the Park Bond Fund Acts of 1974 and 1976; still others by direct Legislative approval. Other funding comes from the Environmental Protection Program Fund, which is supported by the sale of personalized license plates.

It is important to note that the majority of presently preserved Ecological Reserves were set up to protect those species listed in the California Endangered Species Act of 1970 and its amendments. This act directed the California Department of Fish and Game to inventory, describe and make recommendations for the preservation of California's endangered species. Many areas have been purchased, as authorized by the Wildlife Conservation Board, to this end, and most of these have become Ecological Reserves.

Program limitations are availability of funds and the power of condemnation. The Park Bond Funds, for example, one of the major sources of funds, have not been renewed at this writing.

B. California Department of Parks and Recreation.

The California Department of Parks and Recreation actively pursues the acquisition of sites to add to the California Park System. Sites which are nominated by State Legislators and State Parks personnel are investigated and ranked in order of priority using the following criteria; 1) National Heritage Preservation-expected recreational use, proximity to urban core populations and, most importantly, representation of the surrounding ecological province. Thus, an ecological type area which is poorly represented will receive a higher ranking than a comparable type with greater state-wide representation. Such habitats as native grassland, which have no

representatives in the State Park System, should receive a higher priority than perhaps Redwood forest sites which are more adequately represented in the Park System. Another criterion under this category, though, is scenic quality, and unique biological areas may be secondary to sites having high visual quality. 2) Cultural heritage-recreational use value, scenic value and the degree of representation of historical theme are considered. 3) Outdoor Recreation use- proximity to urban area and campground efficiency also carry weight.

High ranking areas are to be acquired as money becomes available. The power of condemnation can be exercised in extreme situations. The following sources of funds are used: The Land and Water Conservation Fund, the Park and Recreation Revolving Account Fund, the Off Highway Vehicle Fund, the Collier Park Recreation Fund and the Park Bond Acts of 1974 and 1976.

C. Coastal Conservancy.

The Coastal Conservancy is a small state agency funded with 9 million dollars by the Park Bond Act of 1976. Their two main functions are land restoration and enhancement. Coastal areas are identified and acquired for restoration as funds exist. Restored areas are then turned over to local resource agencies. This agency, while of local importance, probably will not be a lead agency in wildlife protection in California.

D. University of California Land and Water Reserve System.

The Land and Water Reserve System was established in 1965 with the objective of protecting native habitats for study by university students and faculty. Presently, 22 sites have been acquired for this purpose through a variety of sources. This system of reserves is very important for environmental education; its limited source of funding precludes this program from more extensive land protective activities.

Private Organizations

A. The Nature Conservancy.

The Nature Conservancy is a national, nonprofit organization dedicated to the protection of native ecosystems. The Nature Conservancy has thus acquired over 1,000,000 acres of native American habitats; approximately 30 sites are presently protected in California

alone. The Nature Conservancy is also effective in buying threatened sites and holding them until a resource agency can later purchase and manage the property.

The Nature Conservancy relies completely upon private donations and bequests for its existence. Private benefactors view this organization as a direct means of putting their money to work for the preservation effort. Such large acquisitions as Santa Cruz Island add substantially to the wildland preservation effort.

B. The Audubon Society.

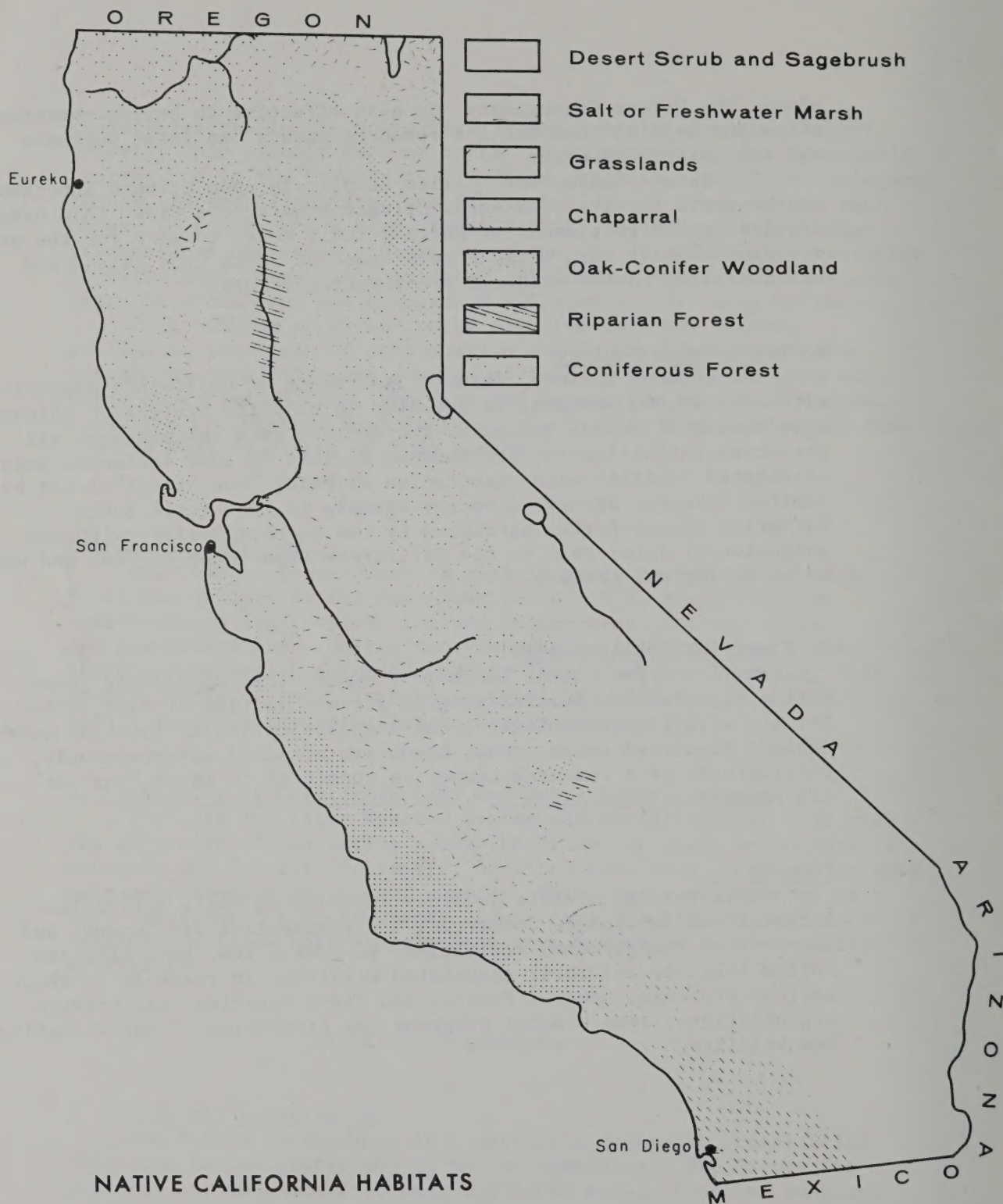
The Audubon Society, through its dozens of California chapters with over 40,000 members, is involved in wildlife protection through acquisition of native habitats. The Society owns and manages six preserves in California. The Audubon Society in some instances acquires threatened habitats with expectation of being "bought out" later by another resource agency. A recent example is the Little Butte Peregrine Falcon Eyrie, purchased by the Audubon Society with the intention of later sale to the California Department of Fish and Game as an Ecological Reserve.

C. Trust for Public Lands.

The Trust for Public Lands is a non-profit, charitable conservation organization specializing in pre-acquisition of land, either for its significant ecological characteristics and/or location near densely populated urban areas. Lands are acquired advantageously, particularly if a resource agency is committed to later "buy out" the property.

Summary

California is a state severely impacted by man's activities. Agricultural expansion, commercial and residential development and destructive recreational activities, to name a few, have affected native habitats and their associated wildlife. In response to these serious problems, several Federal and State agencies, and private organizations, have enacted programs for protection of native habitats and wildlife.



NATIVE CALIFORNIA HABITATS

CALIFORNIA-NEVADA ECOSYSTEM

EVALUATION SYSTEM

<u>Biological Values</u>	<u>Points</u>	<u>Explanation</u>
I. Wildlife Value		
a. Species of local concern	0-4 _____	a. No State critical listing; mainly localized wildlife values.
b. Endemic or declining species (3 pt. ea. - 12 pt. max.)	3-12 _____	b. Endemic or State restricted species (e.g. State, Audubon, or Heritage lists; reflecting declining populations, etc.)
c. Endangered/threatened species (4 pt. ea. - 16 pt. max.)	4-16 _____	c. Federally or State listed endangered or threatened species and those proposed for listing
d. Wildlife abundance	0-4 _____	d. Wildlife abundance for a particular site is thought to be high (3-4 pts.) or low (0-2 pts.)
e. Wildlife diversity	0-5 _____	e. Wildlife diversity, relative to an ecosystem type, or in terms of a rare/unusual species composition is weighed
f. Importance of habitat type	0-5 _____	f. Breeding, feeding, roosting, staging, rearing, or spawning areas are considered in this sub-category
g. Rare floral species (2 pt. ea. - 6 pt. max.)	2-6 _____	g. Federally or State listed plants, or plants proposed for listing will receive points
h. Invertebrates (2 pt. ea. - 6 pt. max.)	2-6 _____	h. Invertebrates listed as a species of concern or Federal or State endangered will receive points accordingly
II. Habitat Value		
a. Common habitat	0-3 _____	a. Ubiquitous habitat type, liberally protected and/or highly disturbed
b. Important habitat	4-18 _____	b. State priority habitat, either unprotected regionally or relatively undisturbed
III. Management		
a. Defensibility	0-6 _____	a. Ability of site to be adequately protected, presence of natural buffers, refuge design potential, degree of necessary direct management
Total Points	_____	

PROTECTION PRIORITIES

<u>RANK</u>	<u>NAME OF AREA</u>	<u>WILDLIFE VALUE</u>	<u>HABITAT VALUE</u>	<u>DEFENSIBILITY</u>	<u>TOTAL POINTS</u>
1	Nipomo Dunes	54	16	2	72
2	Whitewater River Marsh	44	14	3	61
3	Rancho dos Palmos	39	15	4	58
✓ 4	Carrizo Plain	38	14	6	58
5	Cuckoo Island Corridor	35	18	5	58
6	South Fork Kern River	34	17	6	57
✓ 7	Mono Lake	35	15	5	55
8	Bolsa Chica Marsh	38	12	4	54
✓ 9	Desert Tortoise Natural Area	38	9	6	53
10	Emeryville Crescent	39	10	2	51
✓ 11	San Sebastian Marsh	33	13	5	51
12	China Ranch	30	14	6	50
13	San Jouquin Natural Areas	29	14	5	48
14	Putah Creek	28	14	4	46
✓ 15	Fish Slough	23	17	5	45
? 16	Saline Valley Salt Marsh	26	14	5	45
✓ 17	Coachella Valley Fringe-toed Lizard Site	33	9	2	44
18	Watsonville Slough	31	11	2	44
19	Weir Canyon	29	11	3	43
20	San Bruno Mountain	31	8	3	42
21	Kelso Creek	28	10	2	40
22	Hickman Vernal Pools	22	14	4	40
23	Pine Creek	28	8	4	40
24	Sierra Valley Marsh	26	10	4	40
25	Garner Valley	26	7	5	38

26	Big River Estuary	25	11	2	38
27	West Marin Island	23	8	4	35
28	Dozier Grassland/ Vernal Pool	15	14	5	34
29	San Luis Island	12	17	5	34
30	Creighton Ranch	22	9	3	34
31	Brea Olinda Wilderness	21	9	4	34
32	Valley Vernal Pools	14	14	5	33
33	Scorpion Rock	20	9	4	33
✓ 34	Afton Canyon	18	12	3	33
35	El Segundo Dunes	20	10	2	32
36	Lake Norconian	25	4	1	30
37	Gorman Post Road	16	10	4	30
38	Upper Santa Clara River	13	12	4	29
? 39	Rubber Boa Habitat	17	6	5	28
40	Deer Creek	11	12	3	26
41	Meadow Creek	15	9	2	26
42	Fiscalini Property	12	11	3	26
43	Volcan Mountain	13	9	4	26
44	Goose Lake	15	8	1	24
45	Pit River Canyon	12	9	2	23
46	Humboldt Lagoons	11	9	3	23
47	Las Tunas Grass- land	3	17	1	21
48	McNamee's Cave	8	7	5	20
49	Heater Cave	7	7	5	19

I. NAME: Nipomo Dunes

TOTAL ACRES: 3,000-10,000

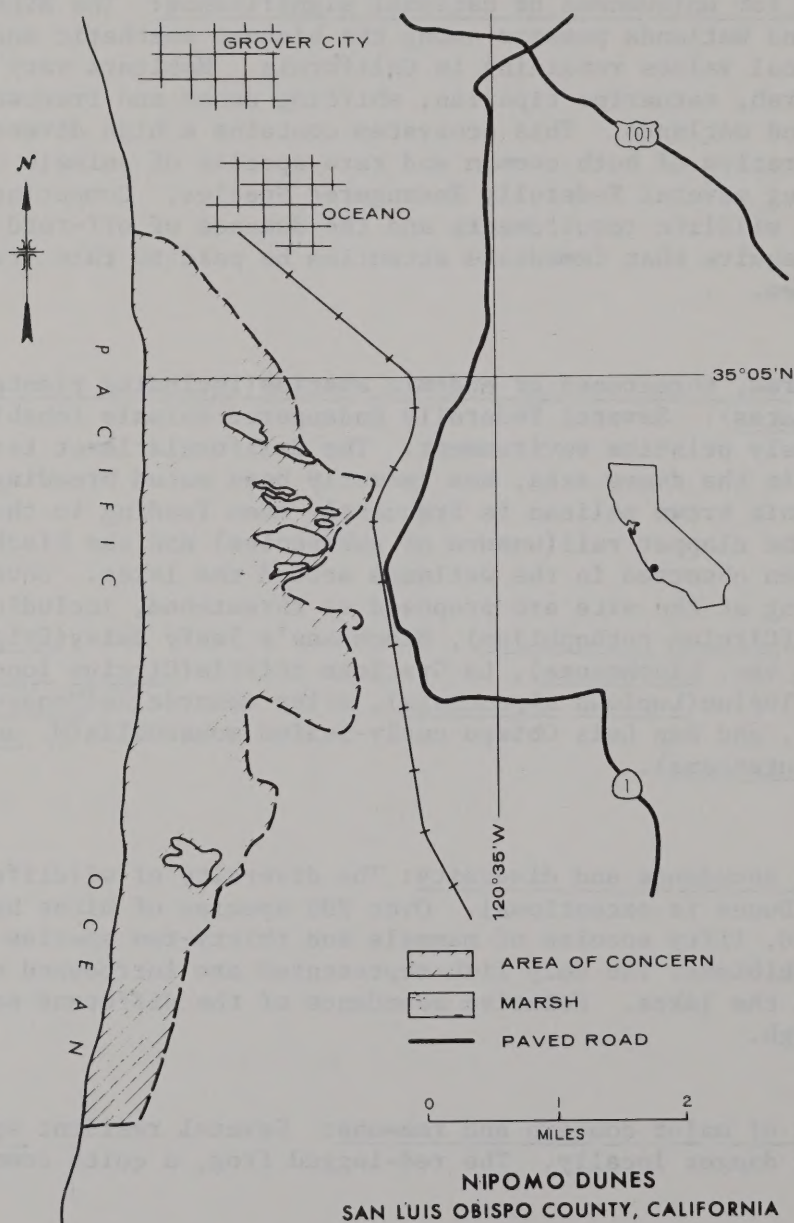
STATE: California

COUNTY: San Luis Obispo

LEGAL DESCRIPTION: T12N,R13E; T32S,R13E.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The Nipomo Dunes and Wetlands possess among the highest aesthetic and ecological values remaining in California. Habitats vary between salt marsh, estuarine riparian, shifting dunes and freshwater lakes and wetlands. This ecosystem contains a high diversity and concentration of both common and rare species of animals and plants, including several Federally Endangered Species. Competing interests between wildlife requirements and the demands of off-road vehicle users require that immediate attention be paid to this fragile and unique ecosystem.
- B. Endangered, threatened or endemic species(including plants and invertebrates): Several Federally Endangered animals inhabit this relatively pristine environment. The California least tern, a common feeder in the dunes area, has recently been noted breeding here. The California brown pelican is frequently seen feeding in the wetlands. Also, the clapper rail(unsure of subspecies) and the black rail have been observed in the wetlands around the lakes. Several plants occurring at the site are proposed as threatened, including a bull thistle(Circium rothophilum), Blochmans's leafy daisy(Erigeron foliosa var. blochmanae), La Graciosa thistle(Circium loncholepis), Nipomo lupine(Lupinus niponensis), crisp monardella(Monardella crispata), and San Luis Obispo curly-leafed monardella(M. undulata var. frutescens).
- C. Species abundance and diversity: The diversity of wildlife in the Nipomo Dunes is exceptional. Over 200 species of birds have been recorded, fifty species of mammals and thirty-two species of reptiles and amphibians. The only fish represented are introduced mosquito fish in the lakes. Relative abundance of the different species is also high.
- D. Species of major concern and reasons: Several resident species are in some danger locally. The red-legged frog, a quite common amphibian



in the dunes-lakes area, has been replaced throughout much of its range by introduced bull-frogs. Golden eagles, on the California "list of concern", are frequently seen feeding in the area during the winter. Other "species of concern" noted in some abundance in the dune-lake ecosystem include long-billed curlews, common loons, Cooper's hawks and ferruginous hawks.

- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The combination of over 70 species of shorebirds, many raptors, song birds, and several species of colonial nesters make this an invaluable wildlife ecosystem.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Most California coastal ecosystems with any degree of natural value are relictual. Nearly all dune ecosystems, the home of many floral endemics, are threatened by dune buggy use. Riparian ecosystems, reduced to 1% of their historical extent, are noted as one of the three most threatened California habitats. And the lake wetlands, while not necessarily rare, represent one of the few natural wetlands not completely oriented towards waterfowl production.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: The current threat is predominantly from uncontrolled use by visitors. Off-road vehicle use is on the increase, and the California Department of Parks and Recreation has recently purchased part of the area as an ORV staging area. This purchase will greatly increase this destructive activity.
- B. Severity of impact and permanence of change: Dune buggies, which cause dune instability, would be somewhat acceptable if there was room for dune migration. However, new potential dune areas do not exist; thus the off-road vehicle activity impact is realistically permanent. Also, the noise from off-road vehicles is deleterious to the more sensitive vertebrate species, not to mention proposed endangered plants.
- C. Degree of protection: The types of habitats represented at the Nipomo Dunes-Oso Flaco Lake area are variously protected by resource agencies. No dune habitats, however, are completely protected. Riparian habitats, while receiving considerable attention, are still protected in figures of under 1,000 acres state wide.

Coastal salt marsh, while protected as both resource agency refuges and by land use regulation, exists in only 30% of its historical acreage. Freshwater marshes, while becoming increasingly protected, are most often used as waterfowl management areas. And oak woodlands, while still a very ubiquitous habitat, are protected at only 2 sites in California.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The land use is predominantly recreational: clamming, off-road vehicle use, wildlife observation and some light hunting around Osa Flaco Lake. The adjoining land use is either residential or agricultural.
- B. Physical Description (geology/soils, topography, climate): The geology of the dunes area is of complex origin. The uppermost layers are stream deposited, wind shaped sand formations. The terrain is undulating and the climate is Mediterranean with a winter maximum of precipitation and an extreme summer drought.
- C. Vegetation/Habitat and estimated acreage: The habitat breakdown of the entire Nipomo Dunes-Wetlands (not all of which is unprotected) is as follows: coastal dunes-9,400 acres; woodland-25 acres; open water-770 acres; freshwater marsh-500 acres; riparian-300 acres; coastal salt marsh-35 acres and mudflats-100 acres. Tules and bul - rush (Scirpus sp) characterize the wetlands; cottonwood (Populus fremontii) and willow (Salix spp) inhabit the riparian area; a wide assortment of annuals and perennials are found in the dunes microhabitats; eucalyptus and live oak (Quercus agrifolia) dominate the woodlands; and pickleweed (Salicornia sp) is the main constituent of the salt marsh habitat.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private and public	many	0	3,000-10,000

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The Nipomo Dunes and Wetlands are currently being seriously looked at for acquisition by

the California Department of Fish and Game and the California Department of Parks and Recreation. If the Department of Fish and Game's purchase comes to fruition, at least part of this ecosystem will be protected. Also involved in the preservation effort are the Morro Coast Audubon Society, San Luis Chapter of the Native Plant Society and the Sierra Club.

- B. Other available information (publications, reports, etc.):
California Dept. of Fish and Game. 1976 The Natural Resources of the Nipomo Dunes and Wetlands.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The other resource agencies and the populace as a whole would welcome assistance in the preservation of this ecosystem. Controversy with off-road vehicle enthusiasts can be expected should any agency attempt to limit their use in the dunes.
- B. Recreational and/or environmental education potential: This area will provide an exceptional site for environmental education. Also, non-destructive use such as picnicking could be entertained at certain points throughout the dunes.
- C. History: This entire area was once part of a large Spanish land grant and many of the features still reveal this tradition (e.g. Oso Flaco Lake = lean bear).
- D. Archaeological information: Area was inhabited by the Chumash Indians over 10,000 years ago. They subsisted on clams and their middens are still present.

I. NAME: Whitewater River Marsh

TOTAL ACRES: 150

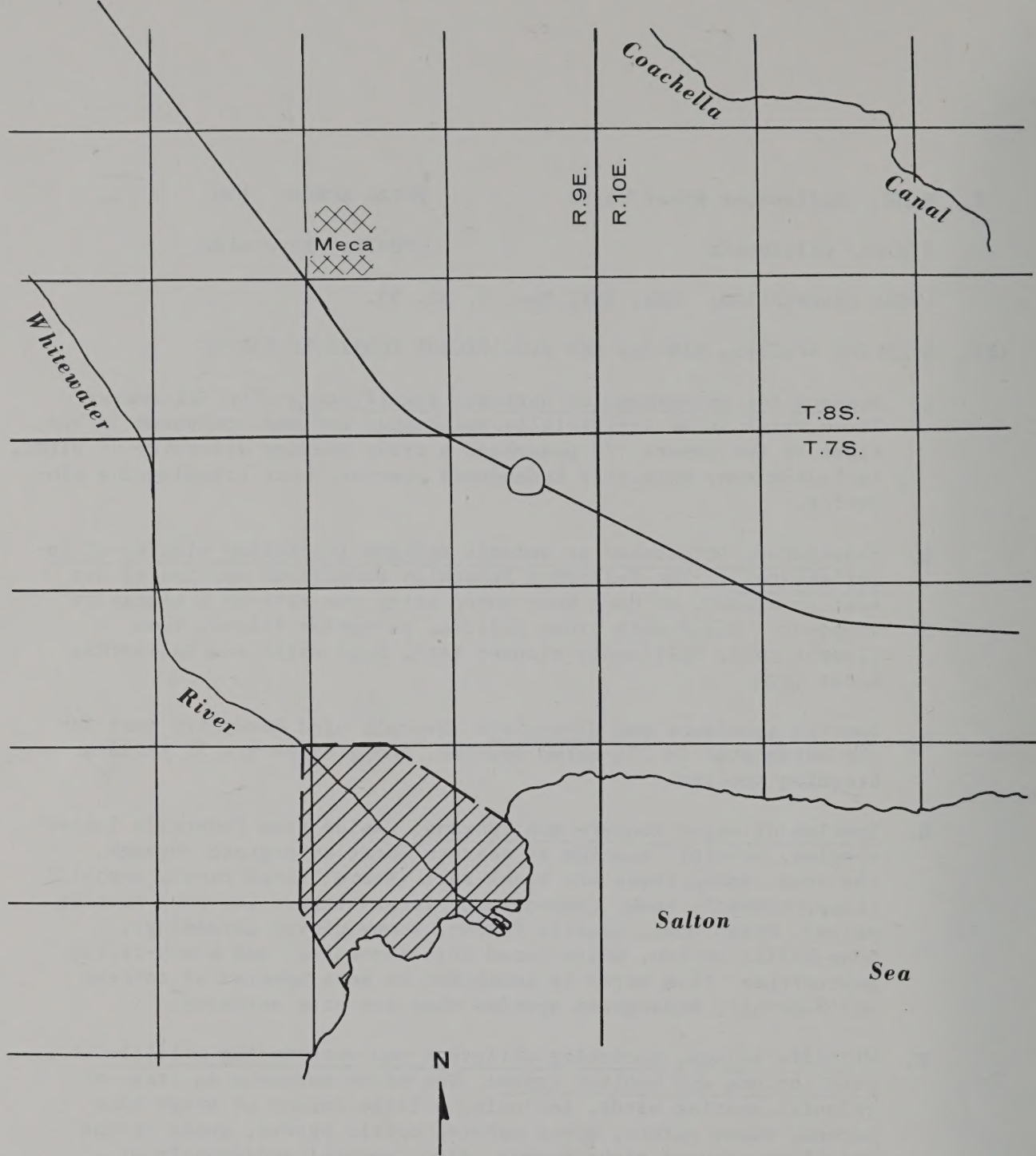
STATE: California

COUNTY: Riverside

LEGAL DESCRIPTION: T8S, R9E, Sec. 5, 32, 33.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The Whitewater River Marsh is an artificially maintained wetland ecosystem in the midst of the desert. It possesses a truly amazing diversity of birds, including many Federally Endangered species, both breeding and wintering.
- B. Endangered, threatened or endemic species (including plants and invertebrates): The following Federally Endangered species either nest or winter, or have been noted using the site as a migratory stopover: California brown pelican, peregrine falcon, Yuma clapper rail, California clapper rail, bald eagle and California least tern.
- C. Species abundance and diversity: Overall bird diversity just for the marsh area is 224 noted species. Among these are 23 resident breeding species.
- D. Species of major concern and reasons: Aside from federally listed species, several "species of concern" nest or migrate through the area. Among these are black rail (State listed rare), sandhill crane, Cooper's hawk, common loon, least bittern (several nesting pairs), marsh hawk, prairie falcon, snowy plover (breeding), long-billed curlew, white-faced ibis (breeding) and black-tailed gnatcatcher. This marsh is inhabited by more species of concern and Federally Endangered species than any site surveyed.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The marsh supports an array of colonial nesting birds, including a large colony of great blue herons, snowy egrets, great egrets, cattle egrets, green herons and black-crowned night herons. Also, several accidentals of interest have been observed at the marsh including roseate spoonbills, blue-footed boobies and magnificent frigate birds.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystems: Freshwater marsh is a very limited habitat type in desert areas. The Salton Sea is the only major wetland area between Mexico

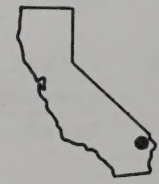


Scale: 1:62,500

LEGEND

-  Area of Concern
-  Paved Road

LOCATION



WHITEWATER RIVER
RIVERSIDE COUNTY, CALIFORNIA

and the Central Valley; it thus provides an island of relief for spring and fall migratory birds.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: At the time of writing, the marsh was imminently threatened by the potential loss of its water source. The Coachella Valley Water District was apparently moving towards channelization of the water away from the marsh. The reason for this move was not clear. More recent changes place the perpetuity of this site in serious doubt.
- B. Severity of impact and permanence of change: Cattail wetland can recover relatively well after prolonged drought. Complete removal of the water source, however, will result in elimination of the marsh and the wildlife.
- C. Degree of protection: As a habitat type, freshwater marsh has received a relatively high degree of protective emphasis in California. In the general area, the Salton Sea National Wildlife Refuge protects similar habitat.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture tree farm, suburban lands, etc.): Surrounding land use is irrigation agriculture including such products as dates, cotton, sugar beets and alfalfa for livestock. Population density is relatively low.
- B. Physical description (geology/soils, topography, climate): The Coachella Valley is a structural valley caused by down warping of the land adjacent to the San Andreas fault. The soils are arid soils, with little clay or organic matter, but an abundance of salts. The climate is extremely hot and arid.
- C. Vegetation/Habitat and estimated acreage: The marsh habitat is a typical freshwater association, predominated by cattail (Typhus sp). The marsh grades into the Sonoran Desert association, which includes creosote bush (Larrea divaricata), Mormon tea (Ephedra ssp) and, in higher elevations, Joshua tree (Yucca brevifolia).

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private and public	several	0	150

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The Los Angeles Audubon Society, the Fish and Wildlife Service, Laguna Niguel Ecological Services, and several noted ornithologists.
- B. Other available information: Bird lists are available from the L.A. Audubon Society.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The L.A. Audubon Society was considering taking legal action against the Coachella Valley Water District to prevent the draining of the marsh. The district is not known to be sympathetic to wildlife preservation issues.
- B. Recreational and/or environmental education potential: The small size and geographic isolation of the marsh will not lend well to recreation potential. Serious ornithologists, however, will continue to use this area.
- C. History: The marsh is artificially maintained by runoff from irrigation water. The entire Salton Sea is also a man-made phenomenon resulting from a 1905 Colorado River flood. It is maintained by irrigation runoff.
- D. Archaeological information: Unknown.

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I. NAME: Rancho dos Palmos

TOTAL ACRES: 1371

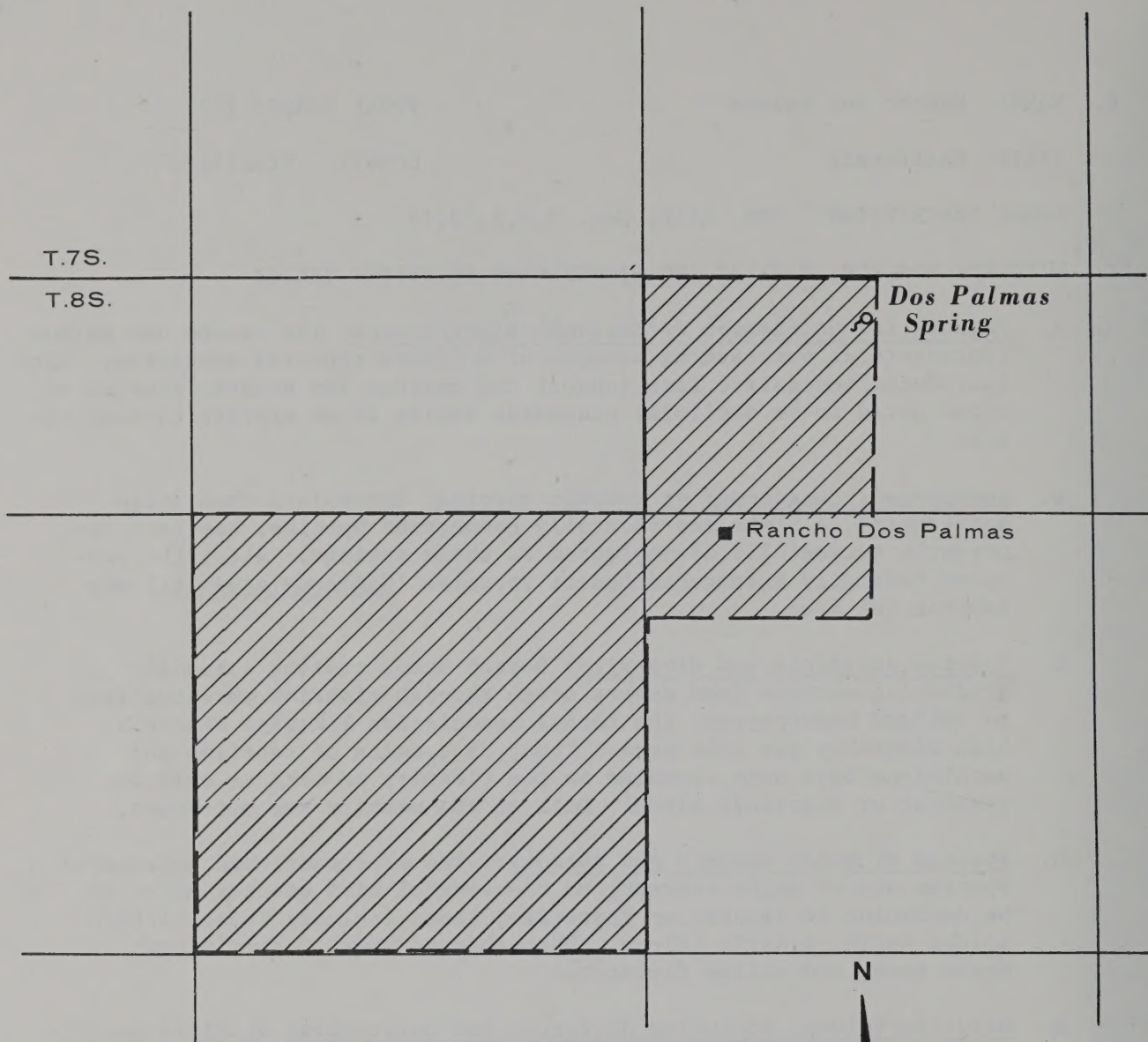
STATE: California

COUNTY: Riverside

LEGAL DESCRIPTION: T8S, R11E; Sec. 3,4,9,10,14

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The rancho dos palmos represents an outstanding example of a desert riparian ecosystem. Rare introduced and native fish inhabit the springs and several species of birds noted to be declining statewide reside in or migrate through the area.
- B. Endangered, threatened or endemic species: The mojave chub (*Gila mohavensis*), a State and Federally Endangered Species, has been apparently successfully transplanted to these springs. Also, the proposed Federally Endangered Desert Tortoise (*Gopherus agassizi*) may inhabit the area.
- C. Species abundance and diversity: Desert oases present a rapidly graduating ecotone from desert scrub through riparian phreatophytes to wetland hydrophytes; the faunal association likewise shares a high diversity per unit area. Thus, 25 species of reptiles and amphibians have been revealed in the vicinity as well as over 140 resident or migratory birds. Data on the mammals are not known.
- D. Species of major concern and reasons: The aforementioned Endangered Species are of major concern, as are several bird species noted to be declining in population statewide; these include: least bittern, golden eagle, prairie falcon, sharp-shinned hawk, Cooper's hawk, marsh hawk, and willow flycatcher.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: Above mentioned values.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Desert oases ecosystems are rare and disjunct due to the disparate nature of their water sources. Such sites are anticipated to maintain high concentrations of animals as well as being likely candidates for floral and faunal endemism.



Scale: 1:24,000

R.11E.

LEGEND



Area of Concern

LOCATION



**RANCHO DOS PALMAS
RIVERSIDE COUNTY, CALIFORNIA**

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: The immediate threat potential is unknown; the property has apparently been for sale in the past. Conceivable threats include water diversion for agriculture or accidental pollution of the springs.
- B. Severity of impact and permanence of change: While the potential threats are of a permanent nature, available information is inadequate for further speculation.
- C. Degree of protection: Desert riparian areas are virtually unprotected in California.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): Unknown, although there is apparently some agricultural use at present.
- B. Physical description (geology/soils, topography, climate): The regional topography is level to gently rolling desert terrain. Other physical parameters are unknown.
- C. Vegetation/Habitat and estimated acreage: Rancho dos Palmos is a member of the Sonoran Desert complex, characterized by creosote bush, saltbush, cactus and palm oasis associations. The relict palm (Washingtonia filifera) and cottonwood are the dominant riparian trees.

V. OWNERSHIP INFORMATION

<u>Types of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	1	unknown	1,371

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: California Department of Fish and Game and the Bureau of Land Management.
- B. Other available information (publications, reports, etc.): Further information is on file with the Sacramento Area Office of the U.S. Fish and Wildlife Services.

VII. ADDITIONAL COMMENTS

A.Controversial aspects related to the site: Unknown.

B.Recreational and/or environmental education potential:Unknown.

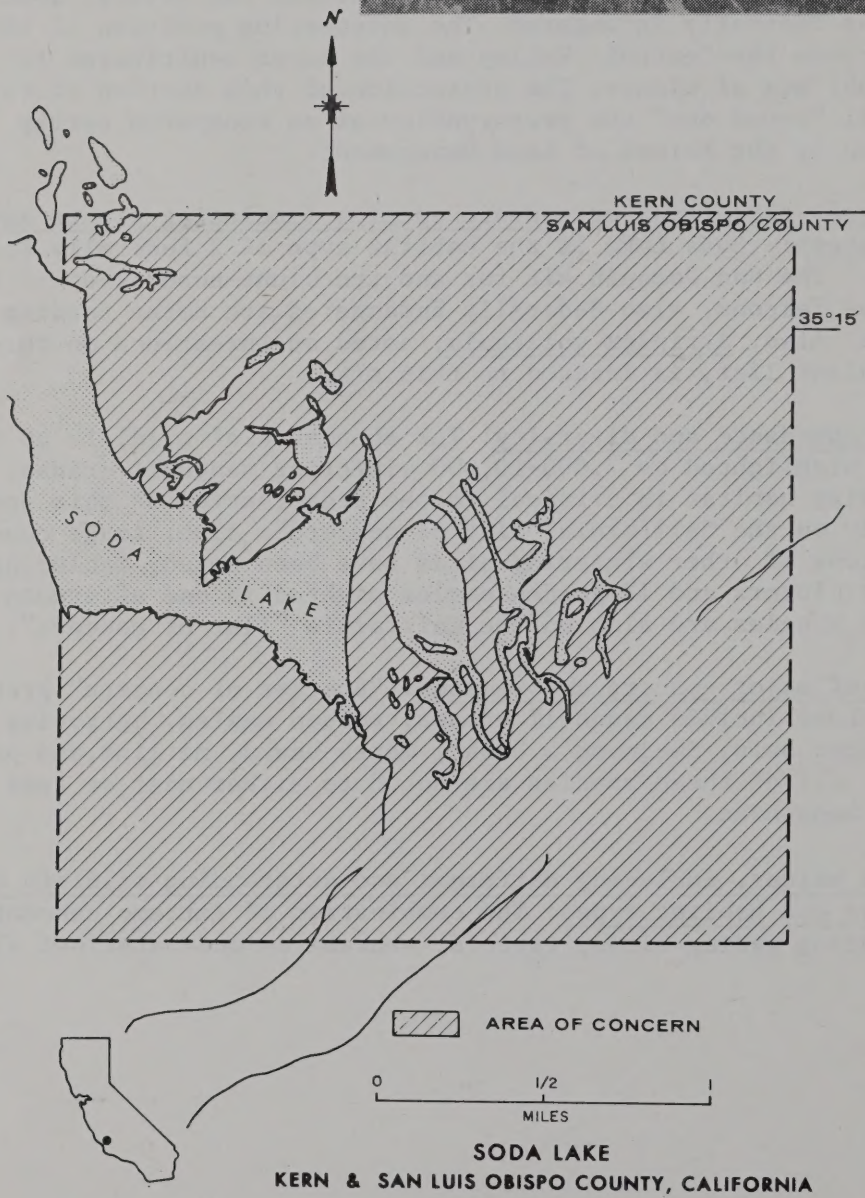
C.History: Site was used by the Cahuilla Indians and as a stage line stop.

D.Archaeological information:Unknown.

I. NAME: Soda Lake (Carrizo Plain) TOTAL ACRES: 2,360
STATE: California COUNTY: San Luis Obispo
LEGAL DESCRIPTION: T.31 N., R. 19 E., Sec. 16, 17, 20, 21.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: Soda Lake and its surrounding habitat form an alkaline salt marsh ecosystem of pristine quality. The lake and surrounding area hosts 10,000 wintering lesser sandhill cranes and is the type locale for several species listed as Federally Endangered. The interesting position of this lake between the Central Valley and the coast contributes to an unusual mix of plants. The protection of this section of the lake will "round out" the preservation of an ecosystem partly protected by the Bureau of Land Management.
- B. Endangered, threatened or endemic species (including plants and invertebrates): Soda Lake is the habitat type of 2 Federally Endangered Species: The San Joaquin kit fox and the blunt-nosed leopard lizard. Peregrine falcons, also Federally Endangered, are noted feeding along the lake. Also, Atriplex vallicola, noted as threatened on the Smithsonian plant list, is located on this site.
- C. Species abundance and diversity: The abundance of wildlife at Soda Lake is highlighted by 7,000-10,000 wintering sandhill cranes. The surrounding habitat is critical to the preservation of this species, currently on the California "list of concern". Also, large concentrations of other wintering birds have been noted, including 500 mountain plovers and 12 golden eagles sighted in one afternoon. Both of these species are also on the California "list of concern".
- D. Species of major concern and reasons: "Species of concern" present at Soda Lake include sandhill cranes, golden eagles, burrowing owls, short-eared owls, Swainson's hawks, marsh hawks, merlins, and prairie falcons. All of these species are noted to either nest or feed at or near Soda Lake.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The combination of extreme concentration of wintering wading birds, raptors, shorebirds and waterfowl along



with the presence of rare plants within a pristine habitat add up to a unique and valuable ecosystem.

- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: This ecosystem type is very rare locally and is slowly being eliminated throughout California. Figures for number of remaining acres of this habitat are not available.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: Threat to this ecosystem is potential but not imminent. There was a plan by the San Joaquin Wastewater Disposal Unit to dump huge amounts of wastewater into the lake and surrounding area. This plan has been tabled. Also, some of the owners of the property apparently bought it speculatively; however, lack of fresh water presently precludes any major development of this property.
- B. Severity of impact and permanence of change: Any type of development will adversely impact these sensitive species to a greater or lesser extent.
- C. Degree of protection: This habitat is quite rare and unprotected locally. The nearest protection for this type of habitat occurs in the Central Valley.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The surrounding area is grazed by sheep. While some ORV use occurs around the periphery of the lake, the majority of the land is unused by man.
- B. Physical description (geology/soils, topography, climate): The soil is made up of anaerobic peat deposits on top of alkaline sediments. The terrain is level and the climate is Mediterranean with cool, wet winters and hot, dry summers.
- C. Vegetation/Habitat and estimated acreage: The vegetation of the Soda Lake area consists entirely of salt adapted plants and includes several species of saltbush (Atriplex) and pickleweed (Allenrolfia). The remaining property is part of the Soda Lake proper.

V. OWNERSHIP INFORMATION

<u>Type of Ownership</u>	<u>No. of Ownerships</u>	<u>No. of Residences</u>	<u>Acres</u>
private	several	0	2,569

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The Bureau of Land Management has shown interest in transferring their land to the United States Fish and Wildlife Service if the remaining private land were to be purchased or otherwise preserved. Also concerned are the Morro Bay and Tulare Audubon Chapters.
- B. Other available information (publications, reports, etc.): An environmental evaluation of the Carrizo Plain area is reportedly being prepared by a worker at the California Polytechnic Institute.

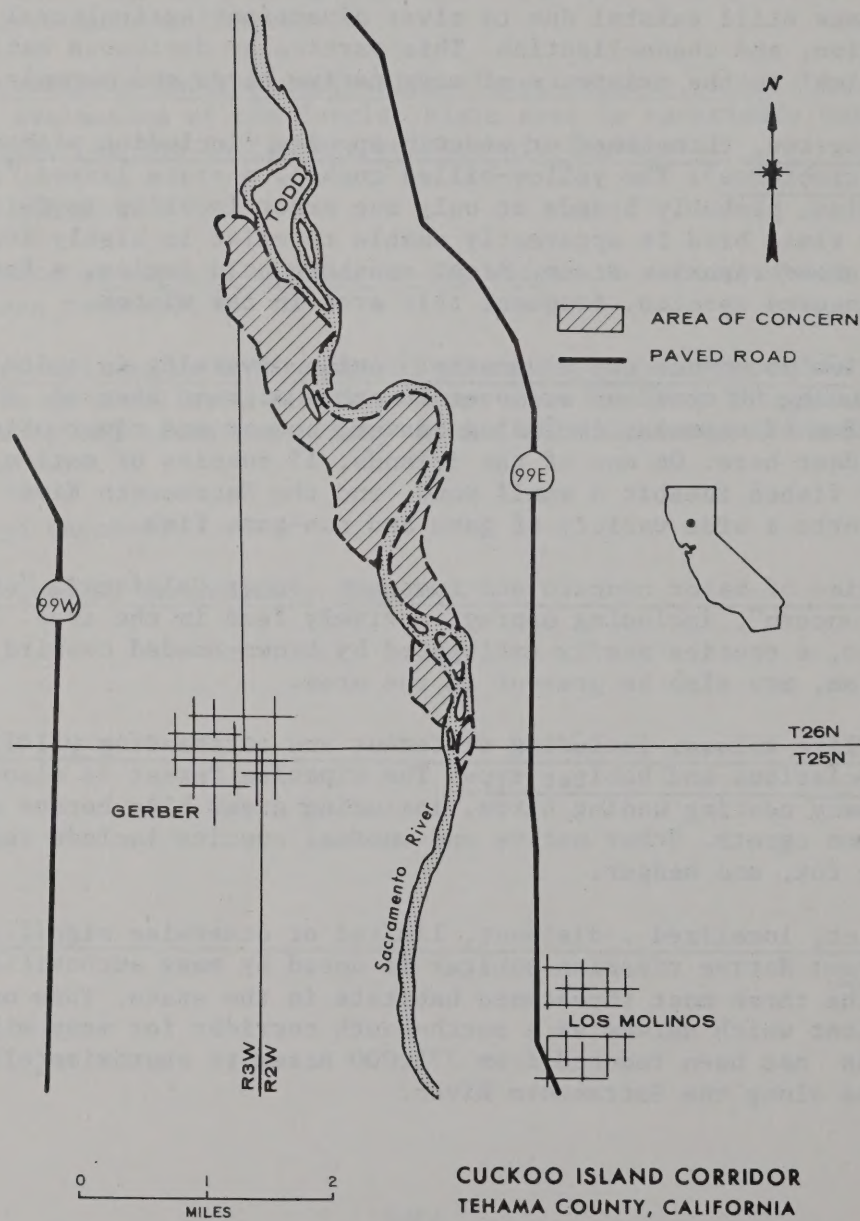
VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: No controversial factors have been reported.
- B. Recreational and/or environmental education potential: This site would be an excellent, albeit remote, area for both botanical and ornithological education. Easy access will insure good birding even for amateurs.
- C. History: Unknown.
- D. Archaeological information: Unknown.

I. NAME: Cuckoo Island Corridor TOTAL ACRES: 3,500
STATE: California COUNTY: Tehama
LEGAL DESCRIPTION: T.25 N., R. 2 W.; T. 26 N., R. 2 W.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness and significance: This relatively pristine non-impacted site has been identified as one of the best remaining in the Central Valley of California. While once a common habitat, deciduous riparian forests are becoming rare (only 1% of original acreage still exists) due to river diversion, agricultural expansion, and channelization. This particular deciduous habitat is critical to the existence of many native birds and mammals.
- B. Endangered, threatened or endemic species (including plants and invertebrates): The yellow-billed cuckoo, a state listed "rare" species, probably breeds at only one other location in California. This timid bird is apparently unable to exist in highly impacted or disturbed riparian areas. Also, southern bald eagles, a Federal Endangered species, frequent this area in the winter.
- C. Species abundance and diversity: Avian diversity is quite high, including 60 resident and over 70 other migrant species. Fifteen species of mammals, including beaver, bobcat and river otter are abundant here. On one of the islands, 15 species of native and exotic fishes inhabit a small pond, and the Sacramento River itself supports a wide variety of game and non-game fish.
- D. Species of major concern and reasons: Other California "species of concern", including osprey, actively feed in the area. Bell's vireo, a species nearly extirpated by brown-headed cowbird parasitism, may also be present in the area.
- E. Wildlife values, including different and outstanding wildlife associations and habitat type: The riparian forest is also home to many nesting wading birds, including great blue herons and common egrets. Other native and unusual species include red and gray fox, and badger.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Native riparian habitat is noted by many authorities as one of the three most threatened habitats in the state. This once common habitat which serves as a north-south corridor for many migratory song birds has been reduced from 775,000 acres to approximately 12,000 acres along the Sacramento River.



III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: The threat to all riparian sites is immediate. River channelization projects are allowing agricultural expansion onto high terrace riparian habitats at the rate of 485 acres per year along the Sacramento River alone. Approximately 50% of the high terrace riparian habitat has been eliminated from the Sacramento River in the past 25 years. Part of this site has been temporarily protected through a 5 year lease to the Department of Fish and Game.
- B. Severity of impact and permanence of change: For the animals adapted to dense corridors of cottonwood-willow vegetation, this degradation is permanent. Increasing demand for specialty agricultural crops such as almonds will supersede any reversal to native habitats in the future.
- C. Degree of protection: Presently, only 500 acres of riparian habitat are known to be fully protected in California. Riparian habitat has only recently been recognized by conservation agencies for its extreme value to wildlife. Recently, a Riparian Study Bill was passed by the legislature to assess the status of riparian habitats in California.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): Most of the land that is being brought into agricultural production becomes orchards. Often the cottonwood is cut and chipped. Other riparian areas still sensitive to flooding are often grazed. This latter situation applies to the Cuckoo Island Corridor.
- B. Physical description (geology/soils, topography, climate): The climate is a Mediterranean type with cool, wet winters and hot, dry summers. The parent material consists of deep deposits of Tertiary-Quaternary sand and silt. The terrain is level with numerous oxbows and point bars on the flood plain.
- C. Vegetation/Habitat and estimated acreage: The deciduous vegetation consists of willow (Salix spp), Fremont cottonwood (Populus fremontii), valley oak (Quercus lobata), black walnut (Juglans californica) and western sycamore (Platanus racemosa). The pond vegetation consists of Elodia (Elodia sp) and pondweed (Potamogeton sp).

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	2	0	3,500

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The State Wildlife Conservation Board and The Nature Conservancy have both attempted purchase of part of this parcel without success. The National Audubon Society and the California Department of Fish and Game are both extremely interested in the preservation of this ecosystem.
- B. Other available information (publications, reports, etc.): Gaines, D. 1977. "Riparian Cottonwood-Willow Forests in California: An Inventory of Potential Preserves." Unpublished report prepared for The Nature Conservancy. Also, the California Department of Fish and Game and The Altacal Audubon Chapter have extensive biological data on the site.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The formation of a wildlife preserve seems compatible with the present land use along the Sacramento River. However, local landowners are very sensitive to any infringement upon their property rights.
- B. Recreational and/or environmental education potential: This type of habitat is very difficult to traverse and probably only determined wildlife observers will make the effort. However, boating is a common activity in the river and is an easy way to observe the more visible wildlife such as beaver and herons.
- C. History: Unknown.
- D. Archaeological information: Unknown.

I. NAME: South Fork of the Kern River TOTAL ACRES: 5,000

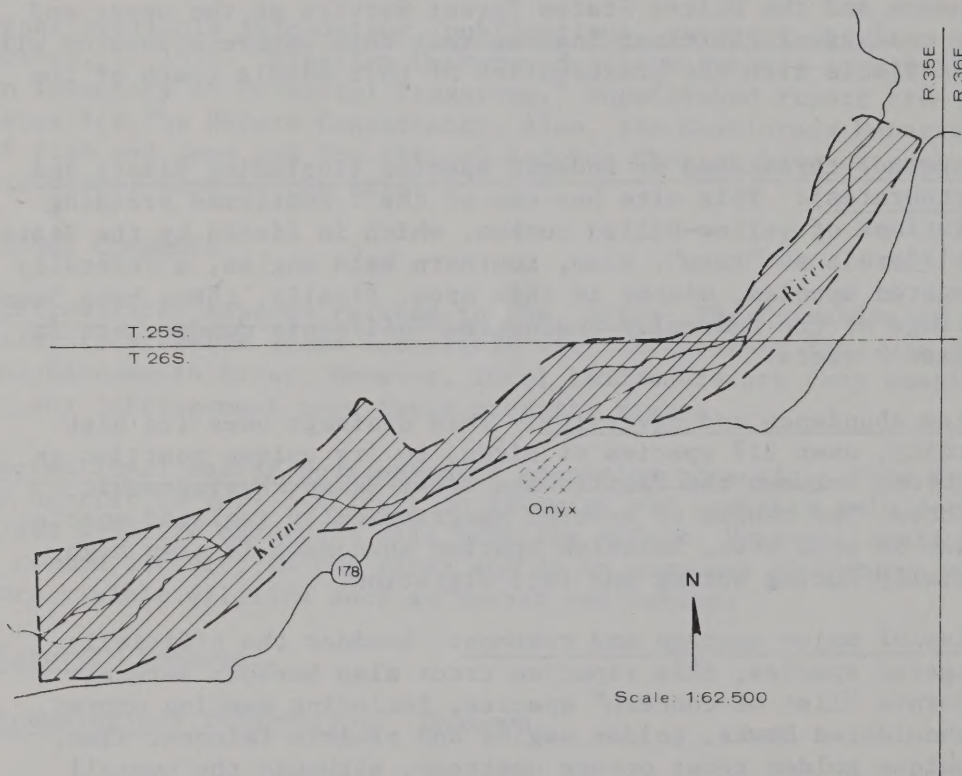
STATE: California

COUNTY: Kern

LEGAL DESCRIPTION: T26S, R34E; T26S, R35E; T25S, R35E.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: This site is one of the best remaining examples of native deciduous riparian habitat in California. River diversion, along with agricultural expansion, has put riparian habitat and its accompanying wildlife in a very tenuous position. The South Fork of the Kern River harbors species of endangered and threatened birds along with native fishes. Also, wildlife conservation efforts by the Corps of Engineers and the United States Forest Service at the upper and lower reaches of the river insures that this entire ecosystem will remain viable with the preservation of this middle reach of the river.
- B. Endangered, threatened or endemic species (including plants and invertebrates): This site has one of the 2 confirmed breeding populations of yellow-billed cuckoo, which is listed by the State of California as "rare". Also, southern bald eagles, a Federally Endangered species, winter in this area. Finally, there have been 3 sitings of the Federally Endangered California condor here in the last 2 years.
- C. Species abundance and diversity: This drainage owes its high diversity, over 217 species of birds, to its unique position as an ecotone between the Pacific and Great Basin Physiographic Provinces. The ranges of several geographically isolated species overlap in this area. Relative species abundance is also high, especially during spring and fall migration.
- D. Species of major concern and reasons: Besides the officially endangered species, this riparian tract also harbors several California "list of concern" species, including nesting osprey, red-shouldered hawks, golden eagles and prairie falcons. Also, the unique golden trout occurs upstream, although the overall fishery value of the river is not great.



LEGEND

-  Area of Concern
-  Paved Road

LOCATION



SOUTH FORK OF THE KERN RIVER
KERN COUNTY, CALIFORNIA

- E. Wildlife values, including different and outstanding wildlife associations and habitat types: There is a great blue heron rookery with 20-30 nests here. Also, wood ducks nest along the river. Several Great Basin species are found here, such as Le Contes thrasher, pinyon jay and Scott's oriole. Several big game species, such as the bobcat, puma and black bear are occasionally sighted here.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: The riparian deciduous ecosystem is becoming increasingly rare in California due to river diversion and agricultural expansion. As the habitat becomes patchy throughout California, the corridor of vegetation which it provides for the passage of seasonally migrating birds becomes less and less effective. This habitat elimination, then, will affect the number of non-game species able to reach breeding areas in the north. Besides the riparian habitat, a relict 50-100 acre stand of Joshua trees occurs within this parcel. On a state-wide basis, deciduous riparian habitat has been reduced to approximately 1% of its original extent.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: The pressing problem here is over-grazing and agricultural expansion. The cottonwood forest is predominantly old growth with little or no regeneration taking place. As the older trees are cut or die off, they are being replaced by shrubs and forbes rather than cottonwood. Also, there is interest in enlarging the gross pool capacity of Isabella Reservoir which would eliminate some of the riparian habitat.
- B. Severity of impact and permanence of change: The complete lack of regeneration of cottonwood along with indiscriminate tree cutting will eventually eliminate this riparian habitat. The wildlife species, especially insectivorous birds which are dependent upon this deciduous habitat, will also be extirpated.
- C. Degree of protection: Presently, very few native riparian sites are completely protected in California. Several agencies are presently working toward this end, however, including the State Wildlife Conservation Board and The Nature Conservancy.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): This area is almost wholly given over to cattle grazing. This activity is currently being phased out by the Corps of Engineers on lower reaches of the river, a development that will definitely add to the defensibility of this ecosystem.
- B. Physical description (geology/soils, topography, climate): The soils are predominantly alluvial silt and sand loams. The climate is Mediterranean with some amelioration due to the increased elevation. Terrain is level to rocky, within a maturely dissected stream valley.
- C. Vegetation/Habitat and estimated acreage: The riparian corridor is mostly cottonwood (Populus fremontii) and willow (Salix spp), while the hillsides grade into xerophytic species including Joshua tree (Yucca brevifolia) and Mormon tea (Ephedra sp).

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	26	few if any	5,000

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The National Audubon Society, Army Corps of Engineers, California Department of Fish and Game, Sierra Club, and the South Fork Watershed Association.
- B. Other available information (publications, reports, etc.): Additional information available through the United States Fish and Wildlife Service, Sacramento Area Office and the South Fork Watershed Association.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The proposal to increase the gross pool of Isabella Reservoir will be strongly opposed by conservation interests.
- B. Recreational and/or environmental education potential: River rafting and bird watching are compatible activities. Due to the sensitivity of the endangered species, hunting should be strictly regulated.

- C. History: The area was settled in the mid 1800's and has remained essentially agrarian to this day.
- D. Archaeological information: Indians once inhabited the site and their grinding holes may still be found in granite boulders.

I. NAME: Mono Lake

TOTAL ACRES: 54,500

STATE: California

COUNTY: Mono

LEGAL DESCRIPTION: T 1, 2, and 3N, R26, 27, and 28 E.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: Mono Lake contains among the highest biological and aesthetic values to be found in the western United States. Its high salinity and alkalinity allow the growth of high densities of endemic brine shrimp and brine flies which, in turn, sustain large populations of breeding and wintering migratory birds. Twenty-five percent of the entire California gull population nests on Mono Lake's Negit Island, and summer and fall populations of eared grebes approach 1 million individuals.
- B. Endangered, threatened or endemic species (including plants and invertebrates): The base of the Mono Lake food chain is the endemic brine shrimp (Artemia monica). Snowy plover, a "list of concern" species nests here. The lake area is also a historical nesting area for peregrine falcons.
- C. Species abundance and diversity: Mono Lake's chemically hostile environment, by excluding fish species, has allowed the development of dense concentrations of invertebrates. The avian sector is relatively diverse - 77 species- but is better characterized by the high seasonal population of a few species, i.e. California gull, Wilson's phalarope, northern phalarope and eared grebe.
- D. Species of major concern and reasons: The most immediate threat is to the California gull breeding colony. Negit Island has recently developed a land bridge as a result of the dropping lake level; this in turn has led to complete disruption of the gull nesting colony by predators.
- E. Wildlife values, including different and outstanding wildlife associations and habitat: Above mentioned values.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Mono Lake is a relict Pleistocene lake which had reached a state of equilibrium prior to recent water diversion activities. While the circumstances resulting in the lake's faunistic association is unique, its precarious position as a result of human modifications are shared with other Great Basin pluvial systems.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: Since 1941, 4 of the 5 major streams feeding Mono Lake have been diverted into the Los Angeles Aqueduct. As a result, the lake level has dropped a total of 35 feet and is currently dropping at a rate of 2 feet per year. The resultant reduction in volume has both exposed Negit Island and, through increasing salinity, threaten the existence of the food chain base-the brine flies and shrimp.
- B. Severity of impact and permanence of change: The loss of the endemic shrimp, and thus the lake's food base, will be permanent. Whether the displaced birds can locate an alternative habitat is an open question.
- C. Degree of protection: No pluvial lake systems of comparable quality are protected.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The lake's brine shrimp are commercially harvested during the summer months. Also, the scenic quality of the area attracts many tourists.
- B. Physical description (geology/soils, topography, climate): Mono Lake occupies a structural valley immediately east of the Sierra fault scarp. The lake surface is penetrated by 2 volcanic islands- Negit and Paoha- and the shoreline soils which have recently emerged are alkaline in reaction.
- C. Vegetation/Habitat and estimated acreage: The shoreline vegetation is dominated by sagebrush (Artemesia) and greasewood (Sarcobatus). The lake surface covers approximately 100 square miles.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
mostly public some private	2 major land- owners: BLM and City of Los Angeles	None	54,500

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The National Audubon Society (special resolution passed by the board in January 1979), other California Audubon Chapters, Sierra Club, Friends of the Earth, Defenders of Wildlife, California Native Plant Society, Contra Costa Hills Club and Federation of Western Outdoor Clubs.
- B. Other available information:
Winkler, D.W. (ed.) 1976. An Ecological Study of Mono Lake, California, Institute of Ecology Publication #12, University of California, Davis.
Interagency Task Force. 1979. Report of Interagency Task Force on Mono Lake.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The battle lines are firmly drawn in this issue: the conservation community views the destruction of this ecosystem as a violation of the public trust, while the city of Los Angeles contends that they are operating within their legal rights and for the general good of the public.
- B. Recreational and/or environmental education potential: Several natural history programs are carried on at the site.
- C. History: Unknown.
- D. Archaeology: Unknown.

- A. [Illegible text]
- B. [Illegible text]

VII. ADDITIONAL COMMENTS

- A. [Illegible text]
- B. [Illegible text]
- C. [Illegible text]
- D. [Illegible text]
- E. [Illegible text]

APPENDIX A

Type of	Location	Date	Remarks
[Illegible]	[Illegible]	[Illegible]	[Illegible]
[Illegible]	[Illegible]	[Illegible]	[Illegible]
[Illegible]	[Illegible]	[Illegible]	[Illegible]
[Illegible]	[Illegible]	[Illegible]	[Illegible]

I. NAME: Bolsa Chica Marsh

TOTAL ACRES: 900

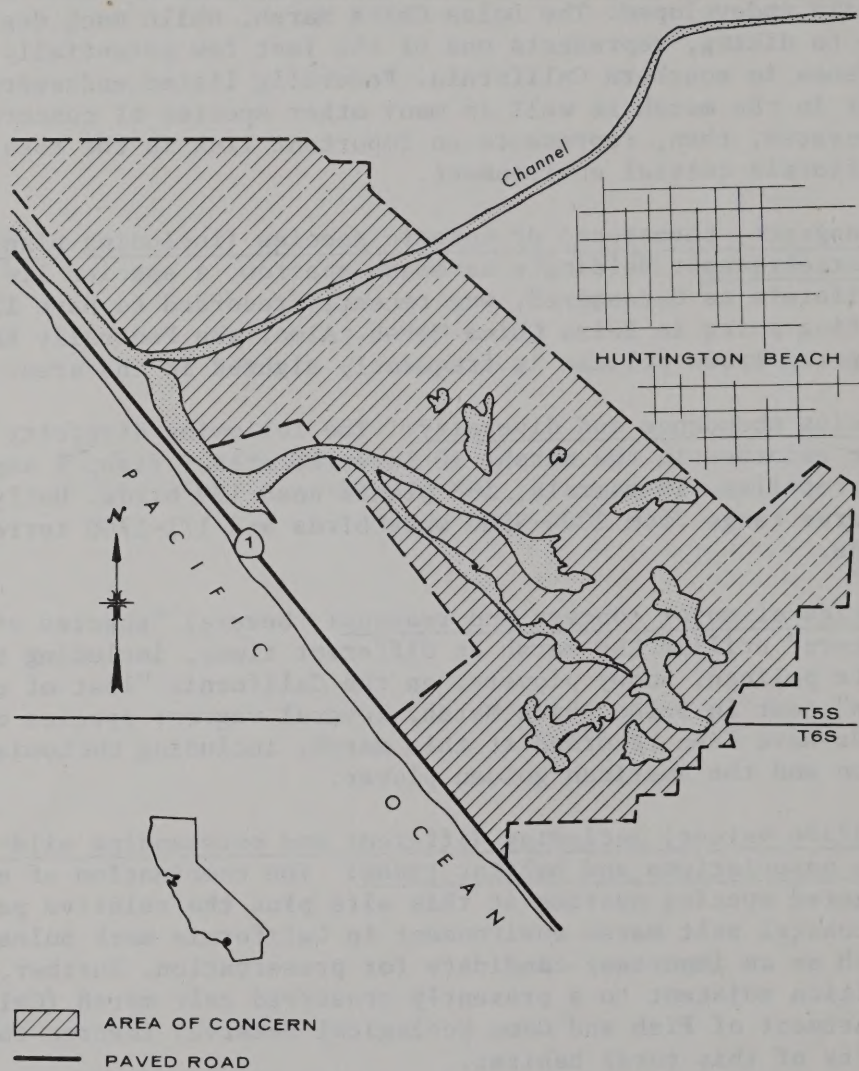
STATE: California

COUNTY: Orange

LEGAL DESCRIPTION: T5S, R11W, T6S, R11W.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: At this time, only one-third of California's historical coastal salt marshes remain undeveloped. The Bolsa Chica Marsh, while much degraded due to diking, represents one of the last few potentially large marshes in southern California. Federally listed endangered species nest in the marsh as well as many other species of concern. This ecosystem, then, represents an important link in the total California coastal environment.
- B. Endangered, threatened or endemic species (including plants and invertebrates): Belding's savannah sparrow, a species listed by California as Endangered, was recently recorded to have 120 nesting pairs in Bolsa Chica Marsh. Also, the Federally Endangered brown pelican is frequently sighted in the area.
- C. Species abundance and diversity: The following diversity has been recorded in the marsh: 10 invertebrates, 9 fish, 9 amphibians and reptiles, 18 mammals, 168 plants and 139 birds. Daily census figures range from 2000-5500 waterbirds and 171-1700 terrestrial birds.
- D. Species of major concern and reasons: Several "species of concern" utilize the marsh at different times, including the white pelican. Snowy plovers, on the California "list of concern" nest in Bolsa Chica Marsh. Several vagrant species of birds have been recorded at this marsh, including the Louisiana heron and the American golden plover.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The combination of endangered species nesting at this site plus the relative paucity of coastal salt marsh environment in California mark Bolsa Chica Marsh as an important candidate for preservation. Further, its position adjacent to a presently preserved salt marsh (California Department of Fish and Game Ecological Reserve) insures the defensibility of this total habitat.



**BOLSA CHICA MARSH
ORANGE COUNTY CALIFORNIA**

- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Coastal salt marshes have been diked and filled throughout California, especially in southern California. The last remaining relicts, which comprise only 13,000 total acres in southern California, are necessary for the maintenance and migration of many species of obligate shorebirds and salt marsh species.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: The complete destruction of this habitat may incur from residential development. Since most of the oil has been extracted, the land owners are attempting to have this property annexed to Huntington Beach in order to develop it. Public pressure has thus far thwarted the annexation attempts. Other threats involve the construction of a marina at the site. The threat to this prime development potential are multifarious; protective efforts will require long-term planning and coordination between all concerned parties.
- B. Severity of impact and permanence of change: Up to this point, the salt marsh degradation has been of a fairly temporary nature. Residential or marina development at the marsh will be quite permanent, both to the habitat and the endangered wildlife.
- C. Degree of protection: Coastal salt marsh has been reduced to approximately 25% of its former extent in southern California. These habitats are of extreme monetary value as marinas and residential developments. Current efforts to protect other salt marshes are taking place, i.e. Tijuana Estuary. Also, regional land use regulations require compensation for lost habitat. As land values constantly escalate, however, the potential for resource agencies to protect these expensive ecosystems reciprocally drops.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The marsh land is currently an oil field. All of the surrounding property is in residential and commercial development, with the exception of the California Department of Fish and Game Ecological Reserve.
- B. Physical description (geology/soils, topography, climate): The hills around the marsh are part of the Huntington Beach anticline. The parent material of the area consists of alluvial and marine sediments. The climate of the area is Mediterranean, with hot, dry summers and cool, mild winters.

- C. Vegetation/Habitat: The natural vegetation of the marsh includes cordgrass (Spartina foliosa), and pickleweed (Salicornia ssp) as dominants. However, the current degradation has led to the temporary displacement of much of this vegetation by exotic weedy species.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	1	0	900

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The California Coastal Commission has listed this as a priority for preservation. More importantly, Orange County has appropriated \$2 million for planning and acquisition of properties immediately above the marsh as part of a planned regional wildlife park. This preservation program seems to have the support of the land citizenry and the political establishment.
- B. Other available information (publications, reports, etc.): "An Environmental Evaluation of the Bolsa Chica Area", prepared by the Dillingham Environmental Company P.O. Box 1560, La Jolla, California 92037.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The only controversy seems to come from the corporate ownerships, which stand to make a huge profit from the development of this site.
- B. Recreational and/or environmental education potential: The close proximity of the ecosystem to a large urban area guarantees use for observation and photography of wildlife. Nearby universities and junior colleges could also use the wetlands for field programs.
- C. History: The marsh was originally part of a Spanish land grant in 1795. It changed hands several times until oil was discovered in 1926.
- D. Archaeological information: Apparently 13 archaeological sites are located in and around the marsh.

I. NAME: Desert Tortoise Natural Area TOTAL ACRES: 8,320

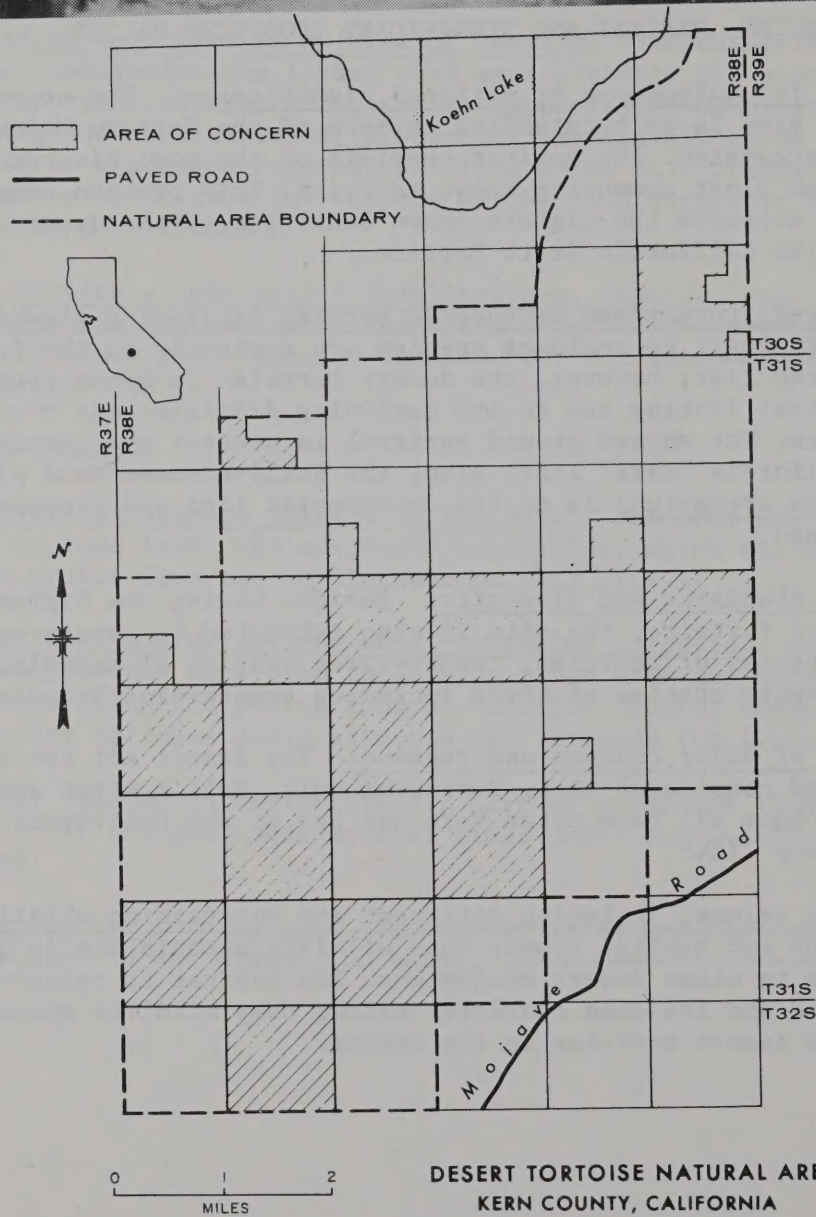
STATE: California

COUNTY: Kern

LEGAL DESCRIPTION: T30S, R38E; Sec. 24, 25, 26, 35, 36, and
parts of Sec. 13; T31S, R38E, Sec. 1
2, 3, 4, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,
18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 32,
33, 34, and S1/2 5 ; T32S, R38E, Sec. 4, 5, 6.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The proposed natural area is an outstanding example of the Western Mojave Desert ecosystem. Its habitat consists of the most diverse creosote bush plant community known to exist. This protean community in turn supports the highest known densities of the desert tortoise, the California State Reptile.
- B. Endangered, threatened or endemic species (including plants and invertebrates): No resident species are currently on the federal endangered list; however, the desert tortoise is being proposed for federal listing due to its declining densities and poor age structure. The Mojave ground squirrel is present and listed on the California "rare" list. Also, the Scaly-stemmed sand plant (Pholisma arenarium) is on the Smithsonian list and proposed as threatened.
- C. Species abundance and diversity: Besides having the highest density of desert tortoise, the site is also inhabited by twenty-seven other species of reptiles, twenty-three species of mammals, and over seventy species of birds including twenty-nine breeding species.
- D. Species of major concern and reasons: The desert kit fox is a resident and considered rare. Burrowing owls, Bell's vireo and prairie falcons have all been noted here and are on the California "species of concern" list.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: This wildlife association is quite rich relative to other desert ecosystems. The habitat is relatively undisturbed and its open character allows easy wildlife observation, e.g. the desert tortoise in the spring.



- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: The creosote-joshua tree ecosystem is one easily overlooked as a "rare" classification due to its extensive range. However, the pristine quality of this particular site relative to the bulk of highly impacted desert land makes this site very valuable ecologically. Also, the aesthetic value of the myriad of colorful spring annuals is difficult to duplicate.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: Several potential and pressing threats exist. Agricultural expansion is taking place in many nearby areas where water is made available. Many of the owners of parcels within the Desert Tortoise Natural Area have indicated they will build homes on their property if not bought out. Grazing takes place around the periphery of the preserve and could be moved into the preserve on the private parcels. Finally, vandalism and ORV use is a very real threat to the habitat and the wildlife.
- B. Severity of impact and permanence of change: Construction of homes would be permanent and extremely deleterious to the tortoise population, especially due to unrestrained dogs which have little problem killing tortoises. Also, ORV use destroys the habitat and any wildlife which gets in the way. The effects of this threat are readily apparent at different points around the preserve.
- C. Degree of protection: Desert habitats are a poorly protected type. Their vast expanse in total area gives the illusion of a never ending resource, reminiscent of early American attitudes toward the coniferous forests. In actuality, heavy grazing pressure, the attractiveness of desert homes to retirees and the unrestrained use of off-road vehicles make undamaged desert environs quite rare.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): Most adjoining land is grazed by sheep. Where irrigation is available alfalfa is grown or retirement communities are built. The area within the preserve is presently unused by man.

- B. Physical description (geology/soils, topography, climate): Most of the rolling terrain consists of Quaternary alluvium deposits with some volcanic intrusions. Soils are aridsols. The climate is quite arid, 0"-7" precipitation per year, with extreme summer highs (over 110° F.).
- C. Vegetation/Habitat: The vegetation assemblage varies from saltbush scrub to creosote bush scrub (Larrea divaricata) to joshua tree woodland (Yucca brevifolia). The joshua tree woodland is limited to the higher elevations; the saltbush scrub to washes and lower alluvial fans; and the creosote bush, by far the most abundant, occupies the level middle to low elevations. The plant diversity (160 species) is surprisingly high.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	numerous	unknown	8,320

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: One of the most important aspects of this project is the cooperative attitude of other groups. The Desert Tortoise Natural Area project was initiated by the Bureau of Land Management. They have set aside 38 square miles of private and public land of which The Nature Conservancy has recently purchased 2 1/2 miles. Inclusion of the remaining private land would round out an ambitious and far-sighted project.
- B. Other available information (publications, reports, etc.): Bureau of Land Management. 1977. Environmental Analysis of the Mojave Desert Tortoise Natural Area (proposed) Special Wildlife Habitat Management Plan. Bakersfield District Office, Bureau of Land Management, Bakersfield, California.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The only potential controversy may arise from owners unwilling to give up control of their land. This situation is unlikely.

- B. Recreational and/or environmental education potential: Site has extreme potential for education. Dozens of school groups visit the site at this time, along with numerous professional biologists.
- C. History: Unknown.
- D. Archaeological information: Unknown.

I. NAME: Emeryville Crescent

TOTAL ACRES: 500

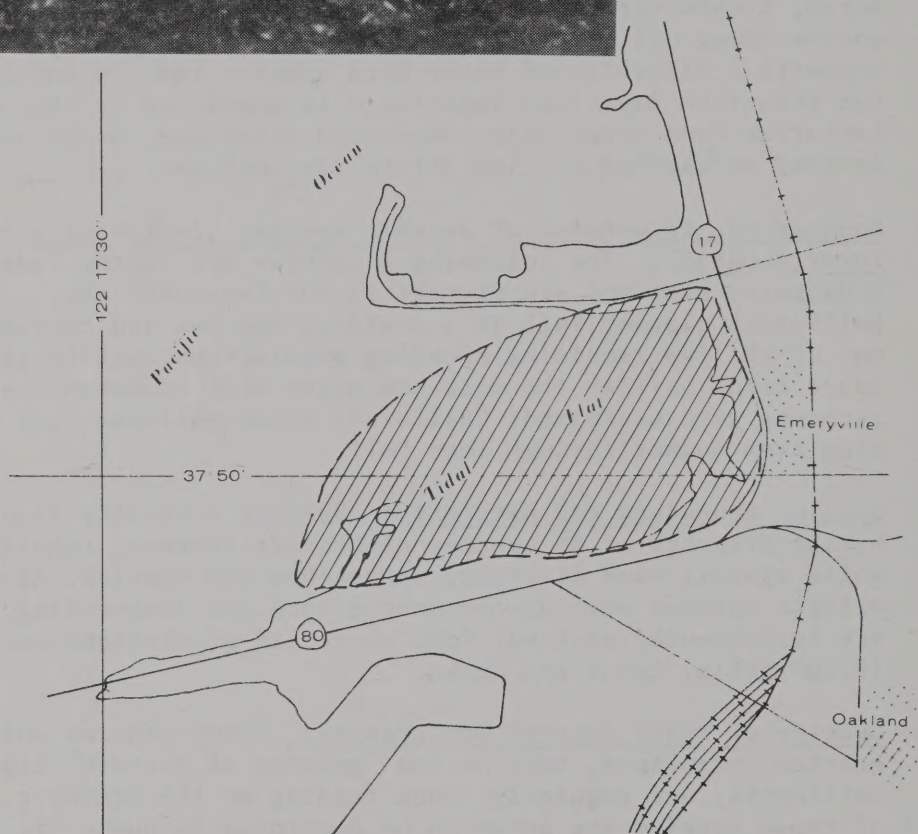
STATE: California

COUNTY: Alameda

LEGAL DESCRIPTION: 37° 50' N Lat; 122° 17' 30"W Long.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The combination of the extensive tidal mudflats, well developed salt marsh, freshwater marsh and pond, salt water and sandy beach is unique among California coastal salt marshes. This habitat mix supports a diversity of water bird species that is unmatched in San Francisco Bay. This importance is magnified by the Crescent's isolation from other major shorebird areas and the presence of several endangered species within its confines.
- B. Endangered, threatened or endemic species (including plants and invertebrates): The following 3 species are on the Federal Endangered List and are present at the Crescent: the California clapper rail is a resident species and represents one of the few remaining breeding populations; California least terns utilize the site and might nest if human disturbance were minimized; California brown pelicans feed in the area from summer through late fall.
- C. Species abundance and diversity: Species diversity is highlighted by the presence of 48 species of Charadriiformes, (shorebirds etc.) while overall bird diversity approaches 150 species. Also some pelagic species such as the arctic tern and long-tailed jaeger are infrequently sighted. Peak shorebird populations exceed 10,000 gulls, terns and ducks.
- D. Species of major concern and reasons: Snowy plovers and double-crested cormorants, both on the "species of concern" list for California, are regularly found feeding at the Crescent. Both of these species are noted to be declining in number in California. Other bird species of importance include the white pelican (list of concern) and the long-billed curlew (list of concern).
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The waters of the Emeryville Crescent are an important spawning ground for the game-fish striped bass. Also, many wading-birds feed along the tidal flats; among these great blue herons, common and snowy egrets and black-crowned night herons.



LEGEND

-  Area of Concern
-  Paved Road
-  Railroad

LOCATION



N
↑
Scale: 1:24,000

EMERYVILLE-CRESCENT
ALAMEDA COUNTY, CALIFORNIA

- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: The Emeryville Crescent is characterized by coastal salt and freshwater marsh. This habitat type historically covered less than 1% of the California land surface, and since 1900, has steadily declined due to diking and filling to one-third of its original extent. The relict status of coastal salt marsh is manifested by the high number of federally listed endangered species endemic to coastal salt marsh.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: Recently, the Emeryville Crescent was the proposed site for a county park. This park, complete with bicycle trail, may well have increased the disturbance to an already fragile ecosystem. This project was recently shelved due to lack of funds. A more immediate threat is the increasing construction of wooden sculptures on the property.
- B. Severity of impact and permanence of change: Salt marsh as a habitat type seems to recover even from long-term degradation quite well. However, the sensitive species, such as the California clapper rail, have no available population surplus to repopulate new areas. Also, as relatively natural areas incrementally become degraded (e.g. trampled), resource agencies become less willing to commit funds to protect a "ruined" area. Thus, the long term impact to this ecosystem, both to the habitat and the sensitive species, must be considered permanent. The impact to the site from construction of driftwood sculptures by local residents has burgeoned to the point that the vegetation is being trampled and killed. While the site's proximity adjacent to Highway 17 precludes heavy use, human and canine disturbance is on the increase.
- C. Degree of protection: Coastal salt marsh is protected to some degree by coastal zone management. Large tracts of this habitat are not sacrificed to development without compensative measures. Also, as a habitat type, salt marsh is afforded some protection in the form of California Department of Fish and Game Ecological Reserves, State Parks and National Wildlife Refuges.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): Aside from use by bird watchers, fishermen, and driftwood sculptors, this area is virtually unused by humans. Much adjacent habitat has been converted to port facilities and other commercial development.

- B. Physical description (geology/soils, topography, climate): The parent material of the tidal flats and stabilized dunes is silt and sand. The terrain is level and the climate is Mediterranean with frequent summer advective fog.
- C. Vegetation/Habitat and estimated acreage: The habitat is coastal salt and freshwater marsh with mostly halophytic vegetation. The plant species, mainly cordgrass (Spartina), pickleweed (Salicornia), and salt grass (Distichlis) are adapted to diurnal inundation by salt water. Habitat breakdown is approximately 60 acres of salt marsh, 35 acres of upland xerophytic species (many exotics), and the remaining in tidal mudflat and open water. Floral diversity is low making obligate animal-plant dependence high.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private, state, etc.	2	0	500

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The University of California, Golden Gate Audubon Society, The Nature Conservancy, others.
- B. Other available information (publications, reports, etc.): Bodega Bay Institute. 1978. An Environmental Assessment of the Emeryville Crescent.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: Agreements must be enacted with local artisans so that construction of limited numbers of driftwood sculptures takes place during the non-breeding season. Since many people equate marsh with wasteland, there may be some hesitancy by artisans to discontinue this practice.
- B. Recreational and/or environmental education potential: The close proximity of the site to several large universities (Stanford, U.C. Berkeley and San Francisco State University) and the urban complex make this a natural site for education activities.

C. History: Unknown.

D. Archaeological information: Nearby shell-mound middens have yielded copious information about early avifauna.

J. NAME: San Sebastian Marsh

TOTAL ACRES: 7,680

STATE: California

COUNTY: Imperial

LEGAL DESCRIPTION: T12S, R10E, Sections 13,21,22,23,24,
26,27,28,29,32,33, and 34.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: San Sebastian Marsh is thought to represent the best remaining example of natural desert wetland in California's Colorado Desert. It is inhabited by an endemic fish, possibly an unnamed species of frog, and a high diversity of birds, mammals and reptiles.
- B. Endangered, threatened, or endemic species (including plants and invertebrates): The water source for San Sebastian Marsh contains the best remaining population of the proposed Federally Endangered desert pupfish (Cyprinodon macularis). Both the endangered southern bald eagle and peregrine falcon feed in the area during migration. Also, the State Rare Yuma clapper rail inhabits this Salton Sea tributary.
- C. Species abundance and diversity: Desert marshes, acting as a faunal oasis, attract a rich assortment of wildlife. Resident or migratory species at San Sebastian Marsh include 89 birds, 1 fish, 2 amphibians, 17 reptiles and 7 mammals.
- D. Species of major concern and reasons: In addition, several rare raptors and passerine birds utilize the wetlands, and a currently unnamed variety of leopard frog (Rana pipiens) occur here.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: Above mentioned values.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Desert oases are both limited and disjunct due to the unfavorable conditions for wetland development. Many of these few areas have been disrupted by man's activities.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: The general area is zoned for open space by Imperial County and the BLM holdings have been proposed as an

Outstanding Natural Area. Approximately 60% of the land is privately owned, however, and the strong possibility exists that the land and/or the water source could be disrupted.

- B. Severity of impact and permanence of change: Should the wetland be converted to another use or ground water pumping drop the water table, the effects on wildlife, particularly the desert pupfish, would be permanent.
- C. Degree of protection: Virtually no desert wetlands are completely protected, outside of the Salton Sea National Wildlife Refuge.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The land is mostly open space at this writing.
- B. Physical description (geology/soils, topography, climate): The general topography is level to undulating with some arroyo cliffs. The elevation varies from -70 to -170 feet below sea level. The climate is typically hot; the limited precipitation is both winter frontal and summer convection in origin.
- C. Vegetation/Habitat: The marsh is located within the Colorado Desert vegetation zone, although the wetland species are largely hydrophytes, e.g. cattail, three-square bulrush and tamarisk.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private and public	unknown	unknown	7,680

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The California Department of Fish and Game, the Bureau of Land Management, the Desert Fishes Council, the Heritage Conservation and Recreation Service, and the U.S. fish and Wildlife Service Office of Endangered Species.
- B. Other available information (publications, reports, etc.): U.S.D.I. 1975. Yuha Desert Management Framework, Bureau of Land Management, California Desert Plan.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: Unknown.
- B. Recreational and/or environmental education potential: Area is rather remote to become a large draw for recreationists.
- C. History: The Anza Trail was used by missionaries and during the gold rush for passage to southern California; the wetlands and springs were important resting points for early migrants.
- D. Archaeological information: The general area contains the only remains of the indigenous Kamia Indians.

I. NAME: China Ranch

TOTAL ACRES: 320

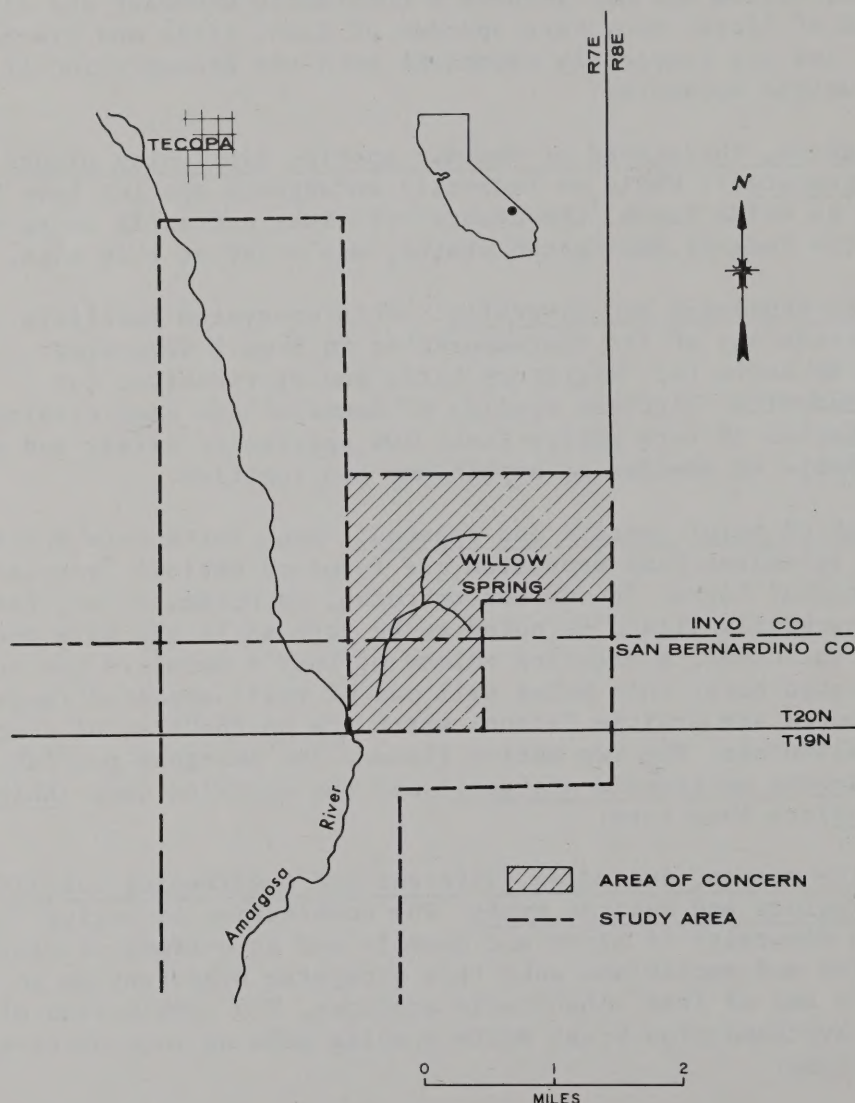
STATE: California

COUNTY: Inyo

LEGAL DESCRIPTION: T20N, R7E, Sec. 25, 26, 35.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: China Ranch is an oasis in the midst of the Mojave Desert. Its reliable water source, Willow Spring, insures a constantly abundant and diverse island of biota. Many rare species of fish, birds and plants inhabit and are completely dependent upon the preservation of this unique ecosystem.
- B. Endangered, threatened or endemic species (including plants and invertebrates): While no federally endangered species have been noted at China Ranch, the desert tortoise, currently under review for Federal Endangered status, may occur at this site.
- C. Species abundance and diversity: This ecosystem parallels or exceeds any of its contemporaries in faunal diversity. It is an oasis for migratory birds and microhabitat for many endemics. Eighteen species of mammals have been catalogued, two species of rare native fish, 104 species of birds, and a remarkable 42 species of amphibians and reptiles.
- D. Species of major concern and reasons: Many vertebrate species which inhabit this ecosystem are found on various "species of concern" lists. The desert tortoise, as noted, occurs here. The chuckwalla lizard is noted to be rare as is the gila monster. Among the birds, a breeding colony of Lucy's warblers has been documented here, this being well out of their expected range. Also noted are prairie falcons which are on the "list of concern" for California. The two native fishes, the Amargosa pupfish (Cyprinodon nevadensis amargosi) and the speckled dace (Rhinichthys osculus) are both rare.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The combination of native fishes, a high diversity of birds and mammals and an extreme diversity of reptiles and amphibians make this ecosystem stand out as an island among a sea of less inhabitable environs. The combination of west coast avifauna plus Great Basin species adds up to a diverse biotic assemblage.



CHINA RANCH
INYO & SAN BERNARDINO COUNTY, CALIFORNIA

- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: The habitat is quite disjunct and limited. The floral assemblage runs the gamut from sand dune to riparian vegetation. The rareness of this habitat among the vast desert expanses explains the high degree of endemism and diversity at this site.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat: It has been reported that Las Vegas interests have negotiated with the owners, who, however, are sympathetic to the ecological value of the site. Other potential threats include agricultural conversion and off-road vehicle use.
- B. Severity of impact and permanence of change: Any change in water quality or level would be disastrous to the native fishes.
- C. Degree of protection: Desert springs are, with few exceptions, completely unprotected in California. Precise figures on number of acres remaining are unavailable.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The land around China Ranch is parched desert with no current use by man. The dominant income from the few isolated towns comes largely from tourism, which might be expected to increase if this area were protected by a resource agency.
- B. Physical description (geology/soils, topography, climate): The geology of the area is somewhat complex. The antecedent Amargosa River has cut through many layers of lacustrine Pleistocene deposits to reach older volcanic tuffs and breccias. The terrain is quite hilly around the Amargosa River and Willow Spring. The climate is an arid desert type. The maximum precipitation occurs in winter and averages only 3-7 inches. Maximum temperatures exceed 120°.
- C. Vegetation/Habitat and estimated acreage: The vegetation is quite varied. In the riparian sites, willow and cottonwood predominate. As you move away from the water, the vegetation progresses to buckwheats and many desert annuals. This floral ecotone adds greatly to the diversity of desert oasis ecosystems. Most of the proposed 320 acres is in riparian or wetland habitat.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	1	2	320

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: Many groups have recognized the importance of this ecosystem. Foremost among them is the Bureau of Land Management, which has set off much of the adjoining Amargosa River as a natural area. The driving force behind the effort to preserve endemic desert fishes is the Desert Fishes Council.
- B. Other available information (publications, reports, etc.): See the "Amargosa Canyon-Dumont Dunes Proposed Natural Area" prepared by the Pupfish Habitat Preservation Committee.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: There is some conflict with dune buggy enthusiasts. However, they are more interested in the Dumont Dunes to the south of China Ranch.
- B. Recreational and/or environmental education potential: Due to the open character of the ecosystem and the extreme density of wildlife, photography and observation of wildlife is easy and successful even for amateurs.
- C. History: Unknown.
- D. Archaeological information: Site is a hotbed of archaeological information. Cultures have been traced back as far as 10,000 years around the Amargosa River.

I. NAME: San Joaquin Natural Areas

TOTAL ACRES: 12,980

STATE: California

COUNTY: Kern

LEGAL DESCRIPTION: All or parts of T27S, R22E; Sections 13,22,24
25,26,27,35; T27S, R23E; Sections 18,19,20,29,
30,31,32,33; T28S, R23E; Sections 3,4,5 and 9.

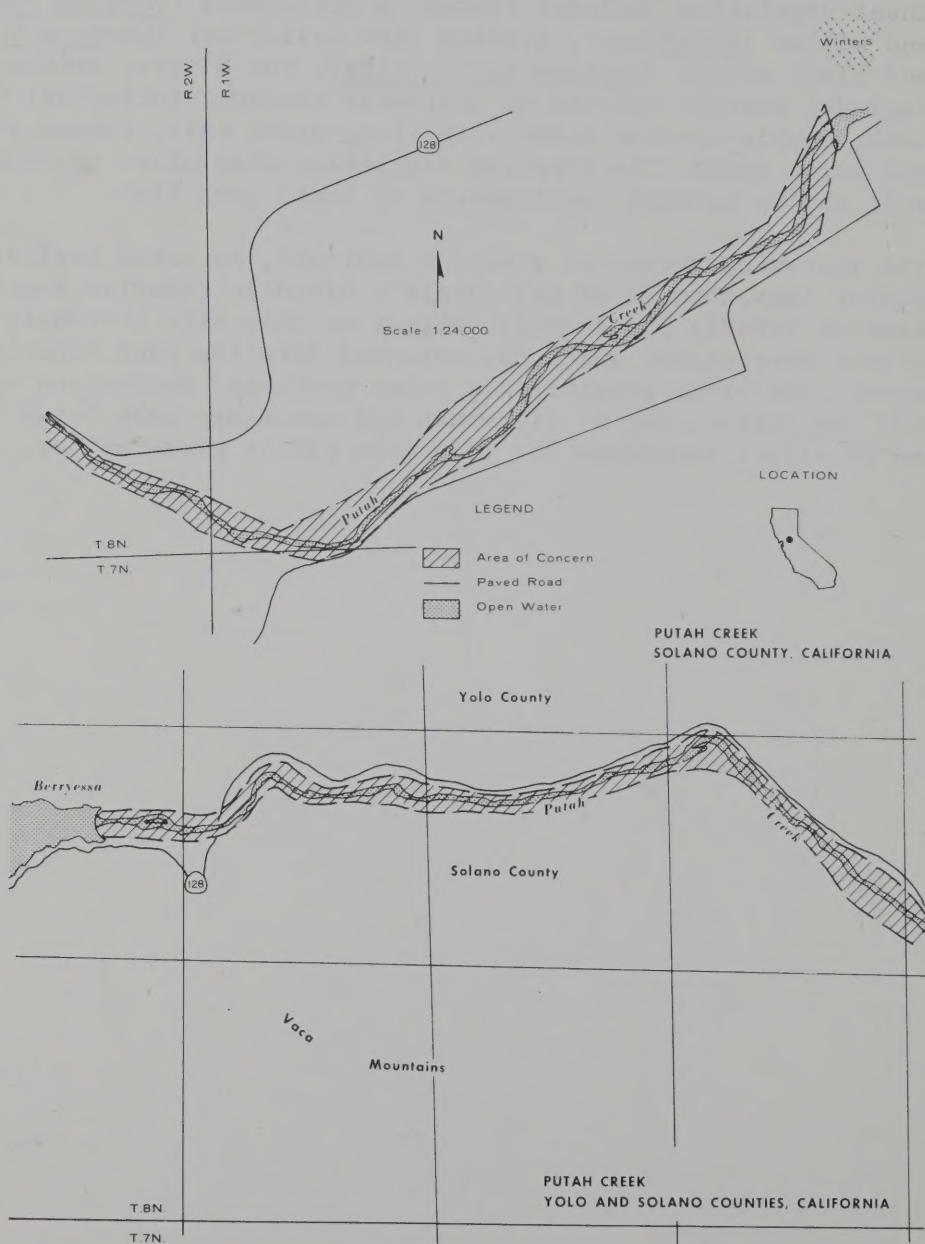
- II. Summary of Biological Values and Threat Factors: The San Joaquin Natural Areas include some of the little remaining natural habitat in the San Joaquin Valley. Native vegetation is dominated by several species of Atriplex, tules, iodine bush, and other alkali dry and wetland adapted plants. Of particular concern are the restricted occurrences of both Federally Endangered San Joaquin kit fox and blunt-nosed leopard lizard. These species have been seriously depleted as a result of the near-complete conversion of this arid area into irrigated agricultural lands. Neither species has been found to adapt to land cultivation.

The level topography and alkaline soils have allowed widespread conversion of native habitats to irrigated agriculture. Conversion has been greatly augmented by the construction of Isabella Reservoir and the California Aqueduct system. By 1950, less than 50% of the habitat necessary to the blunt-nosed leopard lizard remained; suitable habitat for the San Joaquin kit fox is noted to have been reduced by 34% in the 10 year period from 1959-1969. Construction of the proposed gross-pool addition at Isabella Reservoir and the controversial Peripheral Canal will conceivably increase the already heavy pressure upon the few remaining natural areas in the San Joaquin Valley.

I. NAME: Putah Creek Riparian Corridor TOTAL ACRES: 900
STATE: California COUNTY: Yolo, Solano
LEGAL DESCRIPTION: T8N,R2W;Sections 26,27,28,29,35,36;
T8N, R1W, Sections 27,28,32.

- II. Summary of Biological Values and Threat Factors: This area represents the best remaining contiguous stand of riparian vegetation with associated wildlife in Yolo and Solano Counties. The dominant vegetation includes Fremont's cottonwood (Populus fremontii) and willow (Salix spp), grading into valley oak (Quercus lobata) and black walnut (Juglans californica). The diverse avifauna includes several species of statewide concern, including: Cooper's hawk, double-crested cormorants, long-eared owls, golden eagles, and marsh hawks. The riparian vegetation also plays an integral role in the habitat requirements of local game fish.

The statewide threat to riparian habitats, as noted earlier, is acute; less than 1% of California's historic riparian vegetation remains intact. The specific threat to this site currently involves gravel extraction, which has extended into the best riparian areas. The close proximity to other protected recreation areas and the present use by fisherman and canoeists make Putah Creek an excellent candidate for long term public preservation.



I. NAME: Fish Slough

TOTAL ACRES: 200

STATE: California

COUNTY: Mono

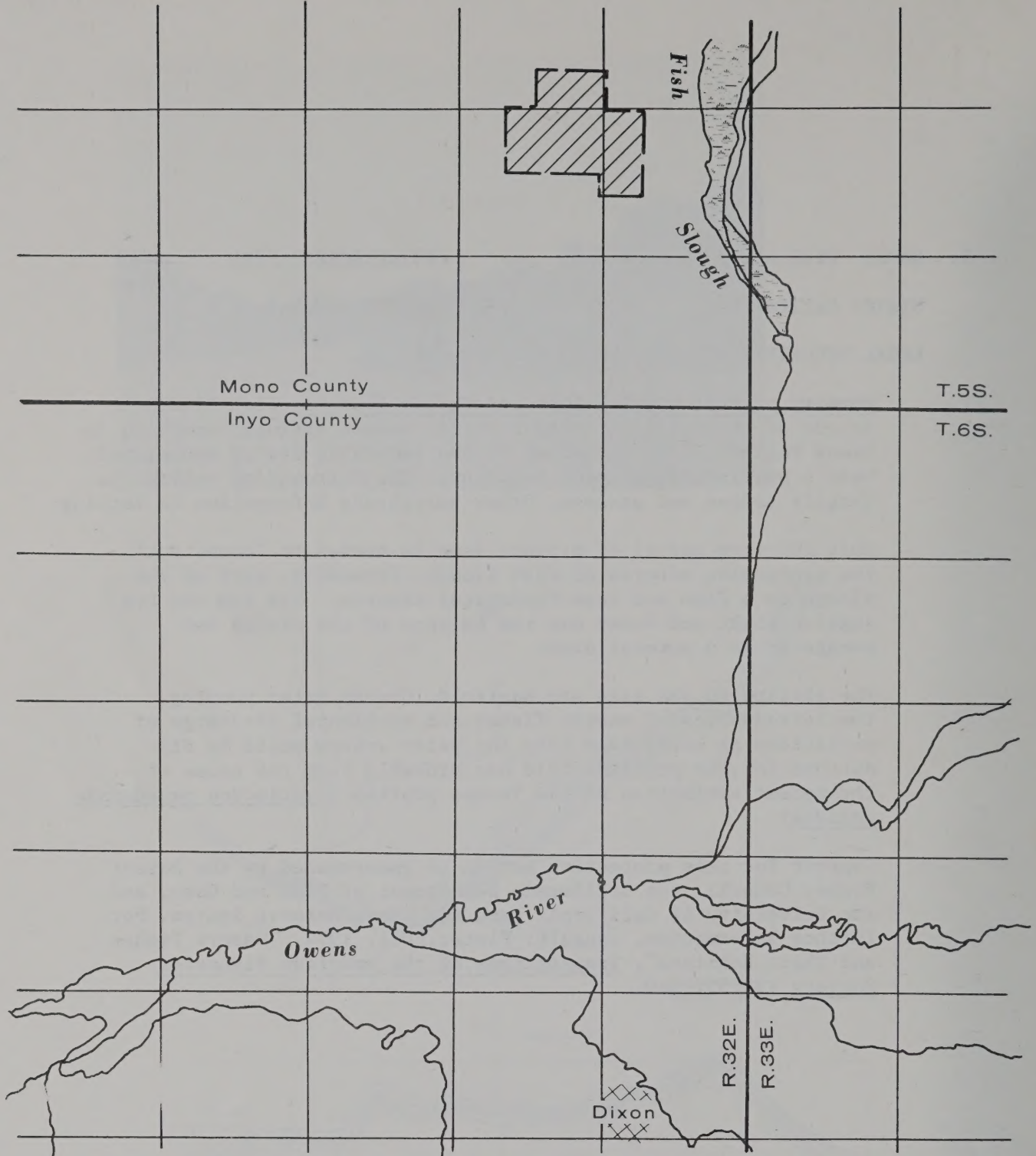
LEGAL DESCRIPTION: T5S, R32E, Sec. 23, 25, 26.

- II. Summary of Biological Values and Threat Factors: Fish Slough is one of the few relatively pristine desert springs remaining in Owens Valley. It is inhabited by the Federally listed endangered Owen's pupfish (Cyprinodon radiosus). The surrounding habitat is largely sedges and grasses. Other vertebrate information is lacking.

This 200 acre parcel of private land is needed to "round out" the protective efforts of Fish Slough. Presently, part of the slough is a Fish and Game Ecological Reserve. The BLM and Los Angeles Light and Power own the balance of the slough and manage it as a natural area.

The threats to the site are manifold. Ground water pumping, the introduction of exotic fishes and accidental discharge of pesticides or herbicides into the water system would be disastrous for the pupfish. This has probably been the cause of the recent extinction of the Tecopa pupfish (Cyprinodon nevadensis calidae).

Support for this protective action is spearheaded by the Desert Fishes Council, the California Department of Fish and Game, and the University of California Land and Water Reserve System. For further information, consult: Pister, Phil. 1974. "Desert Fishes and Their Habitats", Transactions of the American Fisheries Society 130:531-540.



LEGEND



Area of Concern



Stream



Marsh

N



Scale: 1:62,500

LOCATION



**FISH SLOUGH
INYO AND MONO COUNTIES, CALIFORNIA**

I. NAME: Saline Valley Salt Marsh

TOTAL ACRES: 200

STATE: California

COUNTY: Inyo

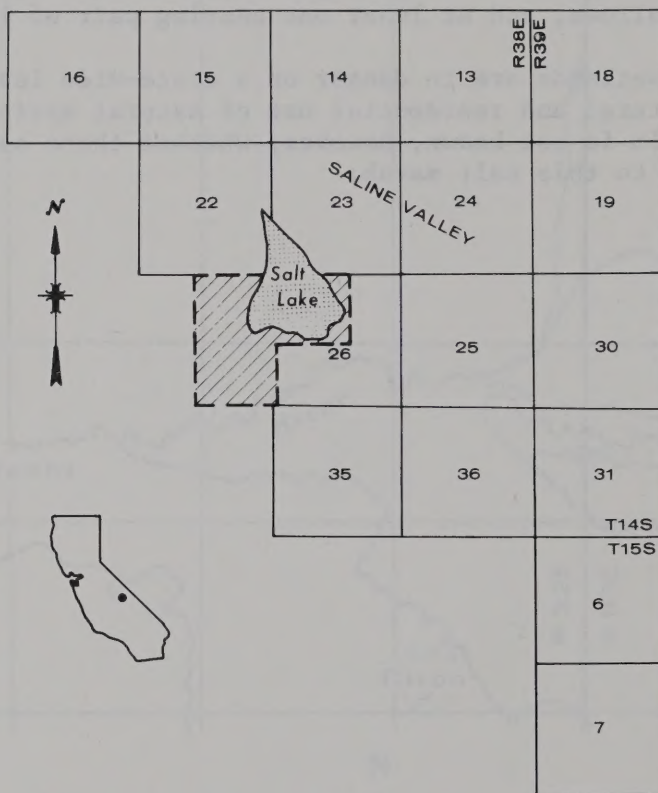
LEGAL DESCRIPTION: T14S, R38E, Sec. 26, 27.

- II. Summary of Biological Values and Threat Factors: The Saline Valley Salt Marsh is one of the most pristine saline wetlands remaining in California's desert region. Its geographic isolation has allowed the area to escape serious alteration by man. The plant community includes such species as mesquite (Prosopis juliflora) and iodine bush (Alenrolfea occidentalis). Preliminary species inventories list 85 birds, 10 mammals, and 13 reptiles and amphibians. Bird species of concern include common yellowthroats, prairie falcons, bank swallows, and at least one nesting pair of least bitterns.

Desert wetlands are in danger on a state-wide level due to agricultural and residential use of natural springs or ground water. It is not known, however, whether there are specific threats to this salt marsh.



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 AREA OF CONCERN

0 1 2
MILES

**SALINE VALLEY SALT MARSH
INYO COUNTY, CALIFORNIA**

I. NAME: Coachella Valley Ecological Reserve TOTAL ACRES: 2900

STATE: California

COUNTY: Riverside

LEGAL DESCRIPTION: T4S,R6E, Sections 22,23,25,26,27,35,36

- II. Summary of Biological Values and Threat Factors: Sand dunes make up a relatively small percentage of California's land coverage. These areas have developed a unique fauna and flora with specific adaptations to this rigorous environment. This specific site represents one of the few remaining sand hummocks and mesquite dune systems in California. Present are two proposed threatened reptiles: the Coachella Valley fringe-toed lizard (Uma inornata) and the flat-tailed horned lizard (Phrynosoma m'callii). Common vegetation includes creosote bush (Larrea divaricata) and mesquite (Prosopis juliflora).

Desert habitats have been rapidly reduced since 1940 as a result of agricultural and residential development. U. inornata's natural habitat has been reduced to about 50% of its historical extent. There are currently no protected representatives of the habitat necessary to U. inornata or P. m'callii in California, although the California Dept. of Fish and Game is planning future acquisition efforts in this area.

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RECEIVED THE BUREAU OF LAND MANAGEMENT
JANUARY 1971

I. NAME: Watsonville Slough

TOTAL ACRES: 1,800

STATE: California

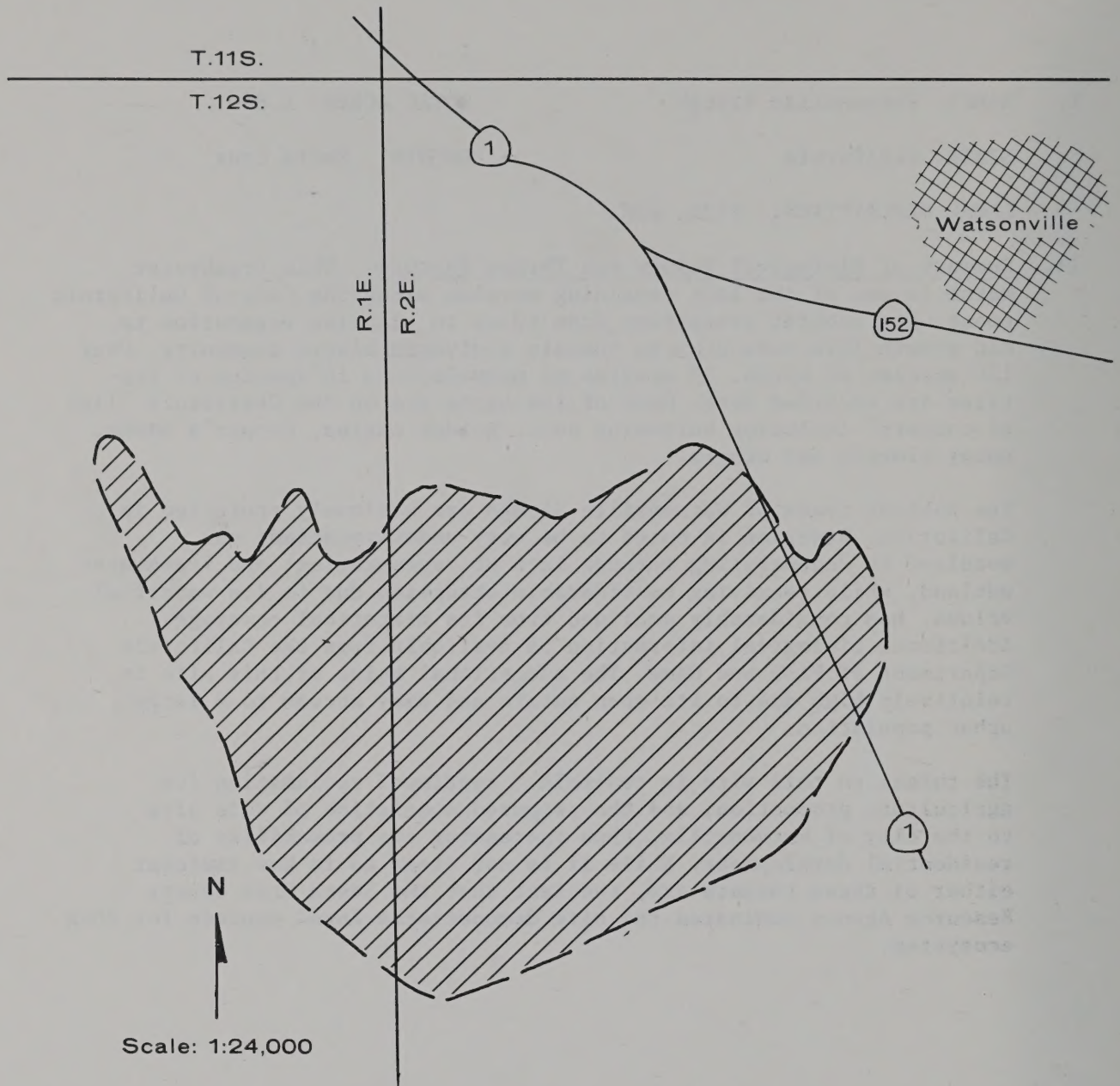
COUNTY: Santa Cruz

LEGAL DESCRIPTION: T12S, R2E.

- II. Summary of Biological Values and Threat Factors: This freshwater marsh is one of the last remaining marshes along the Central California coast. Its habitat transition from tules to riparian vegetation to old growth live oaks helps to sustain a diverse biotic community. Over 120 species of birds, 30 species of mammals, and 14 species of reptiles are recorded here. Many of the birds are on the California "list of concern" including burrowing owls, golden eagles, Cooper's hawks, snowy plovers and others.

The habitat types of Watsonville Slough are variously protected in California. Riparian is noted to be very underprotected; oak woodland is degenerating through lack of regeneration; and freshwater wetland, while receiving considerable attention due to its waterfowl values, has considerably declined from its historical coverage. Additional biological information is available from the California Department of Fish and Game. The educational value of this site is relatively high due to its open nature and easy access to a large urban population.

The threat to this site is two-fold: continued reclamation for agriculture production, and the proposed annexation of this site to the city of Watsonville, thus increasing the probability of residential development. While it is not clear as to how imminent either of these threats are, the fact that the Santa Cruz County Resource Agency nominated the site demonstrates local concern for this ecosystem.



LEGEND

-  Area of Concern
-  Paved Road

LOCATION



**WATSONVILLE SLOUGH
SANTA CRUZ COUNTY, CALIFORNIA**

I. NAME: Weir Canyon

TOTAL ACRES: 2570

STATE: California

COUNTY: Orange

LEGAL DESCRIPTION: T4S,R8W.

- II. Summary of Biological Values and Threat Factors: This site represents a nearly pristine example of chaparral, grassland, riparian and coast live oak woodland habitats. The area has a particularly high density and diversity(14 species) of nesting raptors. Among these are California "list of concern" species such as prairie falcons, red-shouldered hawks, marsh hawks, screech owls, and Cooper's hawks. Also in the area are wilderness indicators such as mountain lion and badger.

Chaparral and oak woodland are poorly protected, although still extensive, habitat types in California. The protection of this site is supported by the Sea and Sage Chapter of the Audubon Society. It has particularly high educational value due to its location near several major universities, a large urban population, and a presently protected parcel(Starr Ranch) which entertains educational groups. Further information is available through the Sea and Sage Audubon Chapter, Santa Ana, California.

The threat to this site is imminent. Over strong objections from the conservation community, the city of Anaheim has approved a residential development plan for the ridgeline; it can be anticipated that this action will serve to open up the remainder of the canyon to future development.

I. NAME: San Bruno Mountain

TOTAL ACRES: 3,500

STATE: California

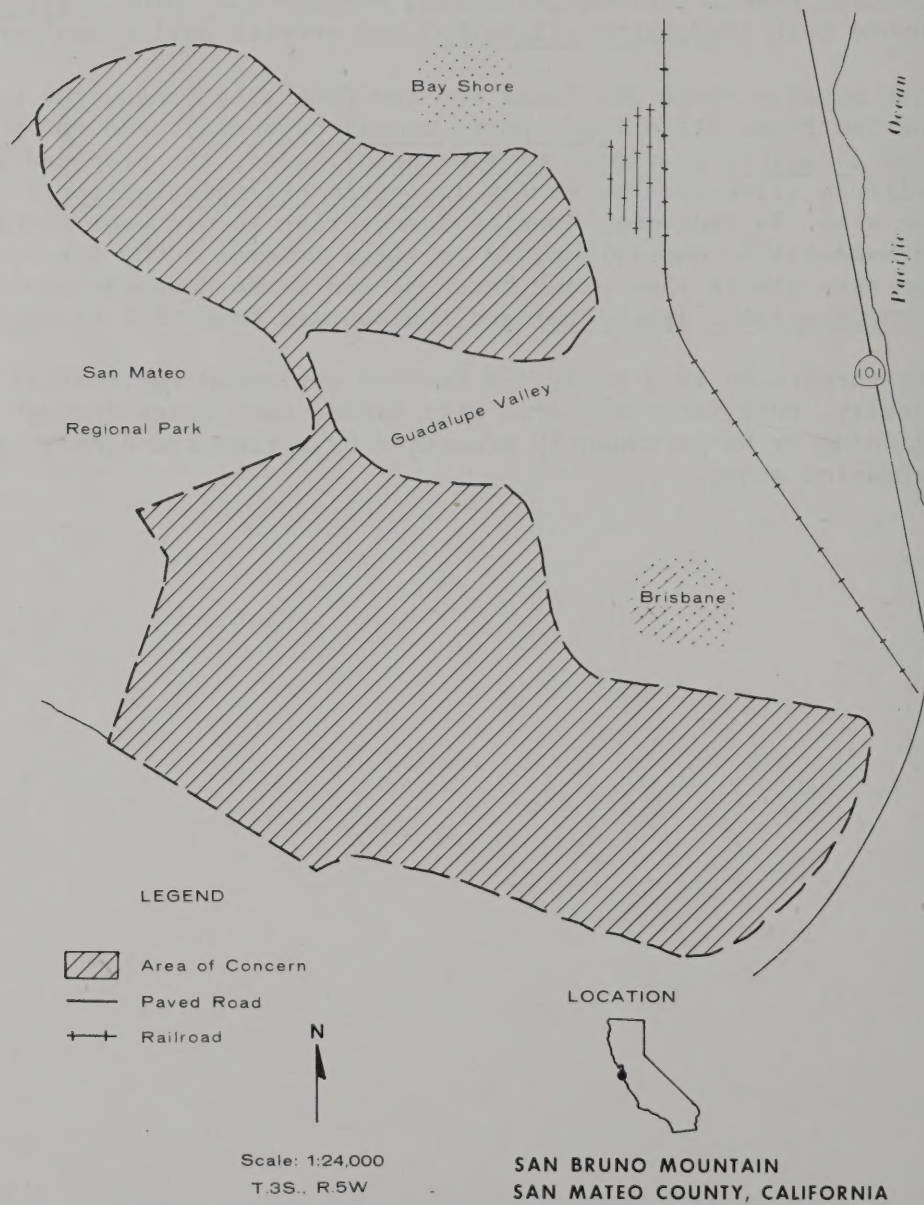
COUNTY: San Mateo

LEGAL DESCRIPTION: T3S,R5W, Sections 4,5,6,7,8,9,15,16,17.

- II. Summary of Biological Values and Threat Factors: San Bruno Mountain stands as an island of native floral and faunal communities amid an ocean of urban land use. Plant associations run the gamut from salt marsh, to grassland, to coastal scrub and woodland communities. Dominant plants include California buckeye (Aesculus californica), coyote bush (Baccharis pilularis) and several native and exotic grasses.

Most notable among the fauna are two Federally Endangered butterflies, the San Bruno elfin (Callophrys mossii bayensis), and the mission blue (Icaricia icariodes missionensis). Also, the proposed endangered Callippe silverspot butterfly (Speyeria callippe callippe) inhabits the site. In addition, species inventories record over 80 birds, 45 mammals, 13 amphibians, 20 reptiles and over 1,000 invertebrates. Two rare plants also occur here: the San Bruno Mountain manzanita (Arctostaphylos imbricata) and the montara manzanita (A. montaraensis).

The threats to this ecosystem include a planned residential development. Ideally, this important area will become open space through county planning or be permanently protected by a resource agency or conservation group.



I. NAME: Kelso Creek

TOTAL ACRES: 700

STATE: California

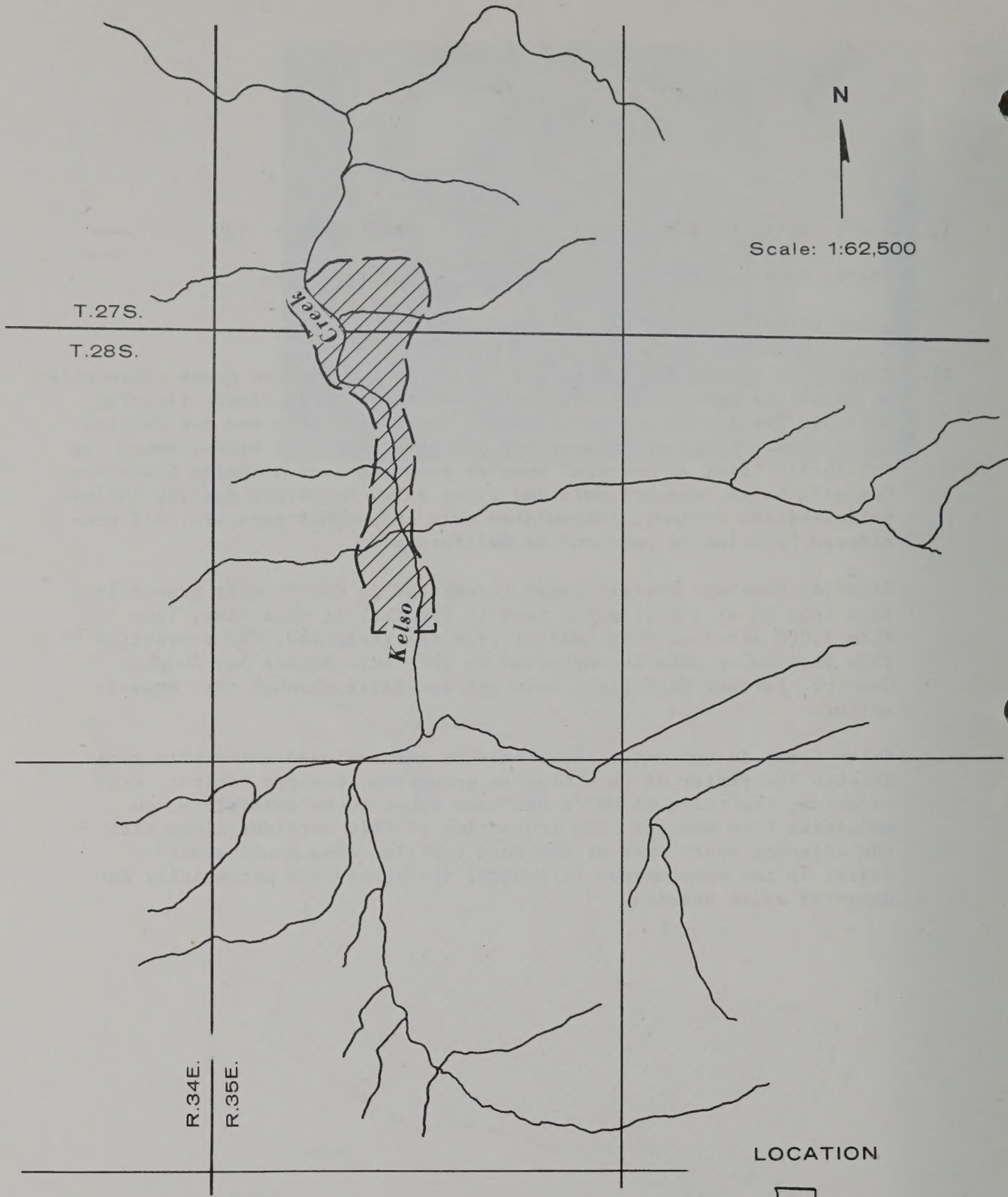
COUNTY: Kern

LEGAL DESCRIPTION: T.28 S., R. 35 E.

- II. Summary of Biological Values and Threat Factors: Kelso Creek represents an excellent example of relatively undisturbed high desert riparian habitat. Its location midway between the Great Basin and the Pacific flyway has created an interesting and diverse mix of birds. Among the California "list of concern" species known to nest at Kelso Creek are Cooper's hawks, screech owls and pygmy owls. Migratory species include yellow-billed cuckoos, flammulated owls and summer tanagers, all considered "species of concern" in California.

Riparian habitats are extremely threatened in California; presently less than 1% of the original habitat remains. At this time, less than 1,000 acres of this habitat type are protected. The protection of this particular site is supported by the Santa Monica Bay Audubon Chapter. Further biological data are available through that organization.

Kelso Creek is currently threatened by unsanctioned motorcycle races through the center of this fragile ecosystem. Besides habitat degradation, the noise of ORV's has been shown to be detrimental to sensitive bird species. The protection of this corridor along with the adjacent South Fork of the Kern riparian area would greatly assist in the maintenance of several threatened and potentially endangered avian species.



LOCATION



LEGEND

-  Area of Concern
-  Stream

KELSO CREEK
KERN COUNTY, CALIFORNIA

I. NAME: Kelso Creek

TOTAL ACRES: 700

STATE: California

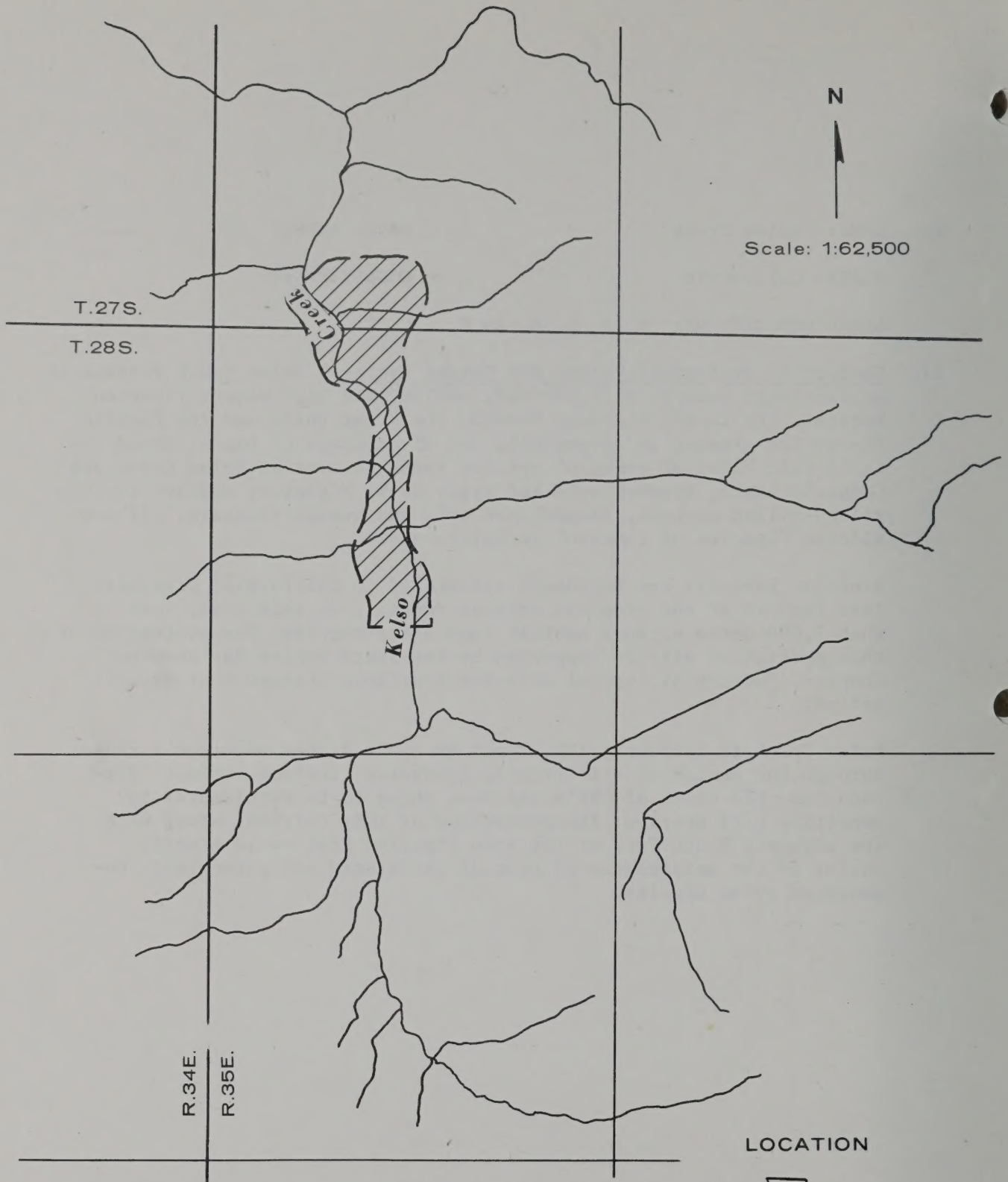
COUNTY: Kern

LEGAL DESCRIPTION: T.28 S., R. 35 E.

- II. Summary of Biological Values and Threat Factors: Kelso Creek represents an excellent example of relatively undisturbed high desert riparian habitat. Its location midway between the Great Basin and the Pacific flyway has created an interesting and diverse mix of birds. Among the California "list of concern" species known to nest at Kelso Creek are Cooper's hawks, screech owls and pygmy owls. Migratory species include yellow-billed cuckoos, flammulated owls and summer tanagers, all considered "species of concern" in California.

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LEGEND



Area of Concern



Stream

KELSO CREEK
KERN COUNTY, CALIFORNIA

I. NAME: Hickman Vernal Pools

TOTAL ACRES: 2,000

STATE: California

COUNTY: Stanislaus

LEGAL DESCRIPTION: T4S, R12E, Sections 2,3,10,11,14,15.

- II. Summary of Biological Values and Threat Factors: Vernal pools are small, seasonal lakes created each spring by impenetrable clay soil pans. As the water slowly evaporates with advancing warmer temperatures, a succession of highly endemic floral rings bloom. The Hickman Vernal Pools are the largest such ecosystems in California. They are inhabited by three proposed threatened species: Orcuttia pilosa, Neostapfia colusana, and Euphorbia hooveri. This area is the type habitat for the Federally Endangered San Joaquin Kit Fox and is home to several burrowing owls, which is a list-of-concern species. During high water, thousands of waterfowl use the pools.

Vernal pools are swiftly disappearing from the California landscape as a result of residential and agricultural expansion. Cattle grazing is compatible with vernal pool preservation, but there are indications that this present activity is not profitable enough at the Hickman Vernal Pools. Disc cultivation, which might occur, permanently disrupts these fragile ecosystems.



LEGEND

-  Area of Concern
-  Open Water

N



Scale 1:24,000
T 4S, R 12E

LOCATION



HICKMAN VERNAL POOLS
STANISLAUS COUNTY, CALIFORNIA

I. NAME: Pine Creek

TOTAL ACRES: 6,000

STATE: California

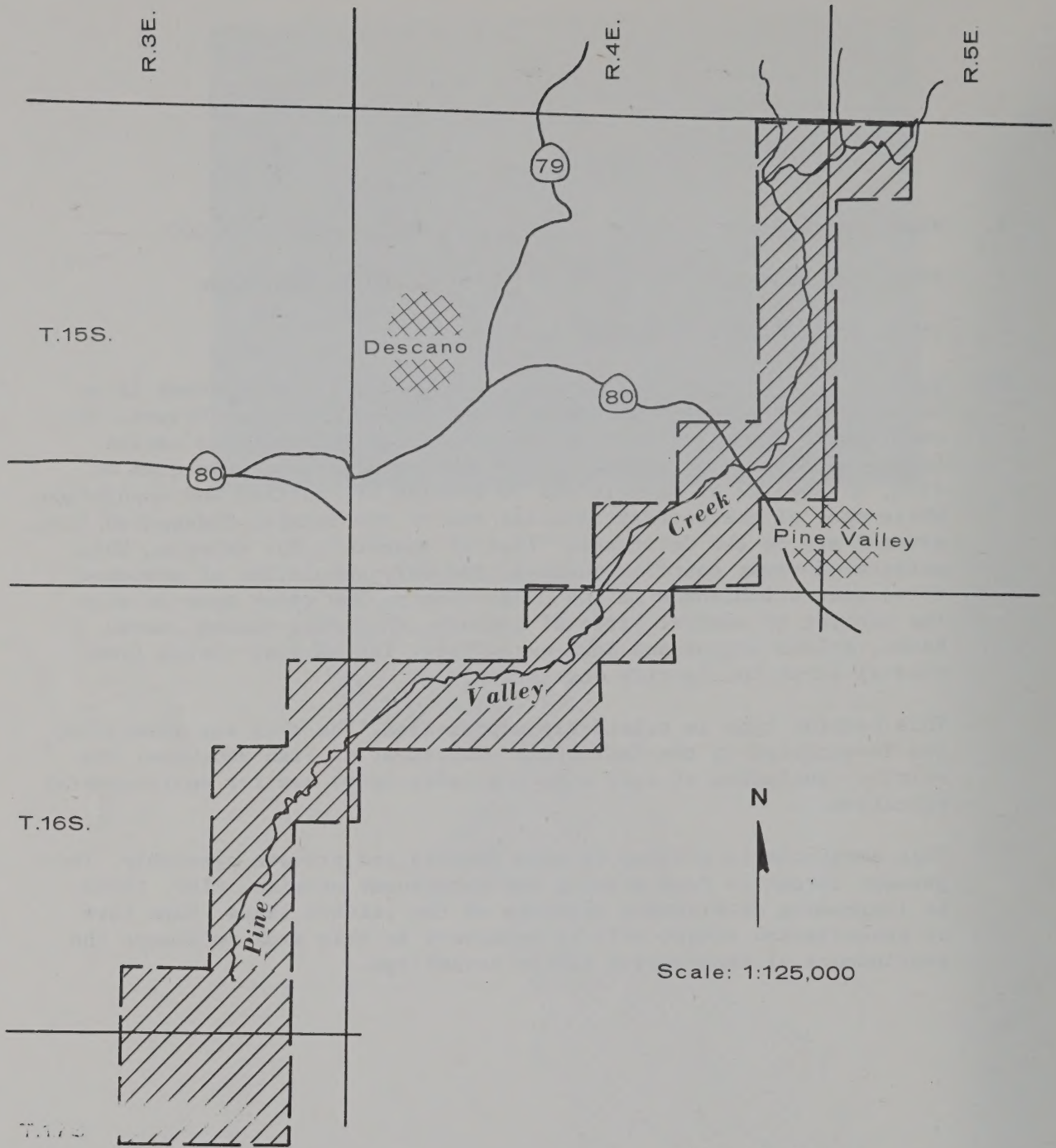
COUNTY: San Diego

LEGAL DESCRIPTION: T15,16,17S; R3,4, 5E.

- II. Summary of Biological Values and Threat Factors: Pine Creek is an undisturbed freshwater stream within Cleveland National Forest. The corridor is known for its high abundance and diversity of native fauna, including approximately 116 species of birds, 3 species of fish, 61 species of mammals and 50 species of reptiles and amphibians. While none of the resident species are on the Federal Endangered list, several are on the California "list of concern". For example, this stretch of river contains possibly the only population of armoured threespine stickleback in San Diego County. The creek area is also the habitat of several birds of concern, including osprey, marsh hawks, golden eagles and long-eared owls. The habitat varies from coastal scrub to riparian vegetation.

This habitat type is relatively unprotected. The site was identified and inventoried by the California Department of Fish and Game. The relative seclusion of this site precludes heavy use for environmental education.

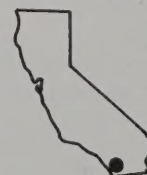
This ecosystem is divided between Federal and private ownership. The present threat is from grazing and subsequent erosion. Also, there is increasing development pressure on the private lands. Some form of preservation effort will be necessary in this area to insure the continuance of this unique biotic assemblage.



LEGEND

-  Area of Concern
-  Paved Road

LOCATION



PINE CREEK SAN DIEGO COUNTY, CALIFORNIA

I. NAME: Sierra Valley Marsh

TOTAL ACRES: 1,600

STATE: California

COUNTY: Plumas

LEGAL DESCRIPTION: T22N; R14E.

- II. Summary of Biological Values and Threat Factors: Sierra Valley Marsh is an isolated wetland sustained by both snow melt runoff and artesian wells. Both southern bald eagles and peregrine falcons are noted to migrate through the area. The diversity of biota includes over 100 species of birds, 12 species of mammals and 8 species of fish. Several California "list of concern" species are recorded at the marsh including breeding sandhill cranes, feeding white-faced ibises, golden eagles, and white pelicans.

Freshwater wetland is dwindling in acreage, although there are several programs addressing the protection of this habitat type. This site has a broad base of support, including the California Department of Fish and Game, San Francisco State University and the U.S. Fish and Wildlife Service, Sacramento Ecological Services. The site is presently used as a field station for natural history classes through San Francisco State University; it thus possesses very high educational potential. For a complete biological survey, consult: "A Biological Baseline Study of the Sierra Valley Marsh, California" 1976, prepared by the Department of Biology, San Francisco State University.

The threat to Sierra Marsh is mainly overgrazing and possible development into second homes or vacation resorts. It is not known how imminent these later threats are.



LEGEND

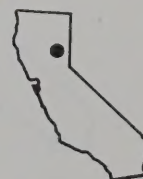
 Area of Concern

N



Scale: 1:62,500

LOCATION



SIERRA VALLEY MARSH
PLUMAS COUNTY, CALIFORNIA

I. NAME: Garner Valley

TOTAL ACRES: 25,000

STATE: California

COUNTY: Riverside

LEGAL DESCRIPTION: T6S,R3E; T6S,R4E; T7S,R4E; T7S,R3E.

II. Summary of Biological Values and Threat Factors: Garner Valley and the surrounding uplands are dominated by pine-savanna habitats. Species inventories list several Federally Endangered and list-of-concern species, including southern bald eagles, peregrine falcons, golden eagles, and several plants of concern, including Arabis johnstonii, Chaenactis parishii, and Layia ziegleri.

Threats to these properties involve possible residential and recreational development of the private parcels.

I. NAME: Big River Estuary

TOTAL ACRES: 1500

STATE: California

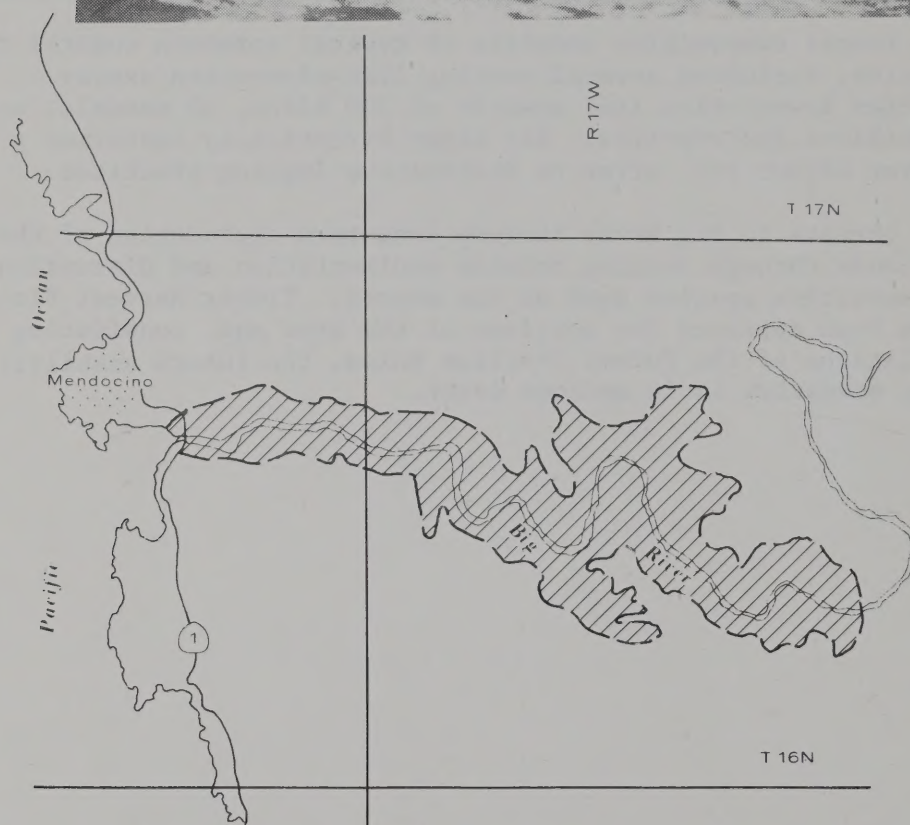
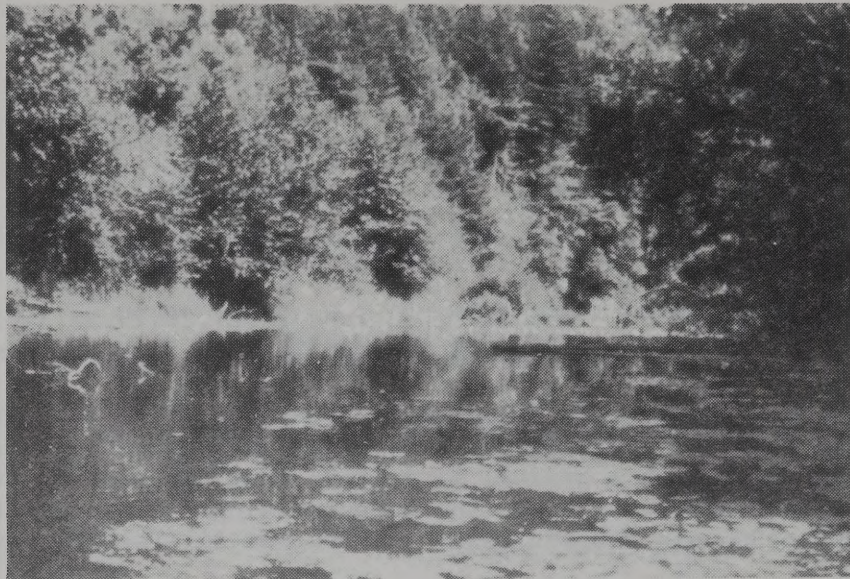
COUNTY: Mendocino

LEGAL DESCRIPTION: T17N,R17W,Sections 26,27,28,29,32,34,35;
T17N,R16W,Section 1; T16N,R16W,Section 6.

- II. Summary of Biological Values and Threat Factors: Big River represents one of the largest, relatively undisturbed estuaries in California, with a gradual transition from riparian to fresh and brackish water wetlands. The forested slopes are dominated by redwood(Sequoia sempervirens) and Douglas fir(Pseudotsuga menziesii).

The faunal composition consists of typical northern coastal forest species, including several nesting list-of-concern osprey. Species inventories list upwards of 100 birds, 10 mammals, and 12 amphibians and reptiles. Big River historically contained a viable silver salmon run, prior to destructive logging practices.

The threats to Big River include long-term degradation of the wetlands through logging related sedimentation and disruption of sensitive species such as the osprey. Timber Harvest Plans have been approved for portions of the area and, considering recent upstream violations of the Forest Practice Rules, the future viability of this ecosystem is in serious doubt.



LEGEND

-  Area of Concern
-  Paved Road



Scale: 1:62,500

LOCATION



**BIG RIVER ESTUARY
MENDOCINO COUNTY, CALIFORNIA**

I. NAME: West Marin Island

TOTAL ACRES: 160

STATE: California

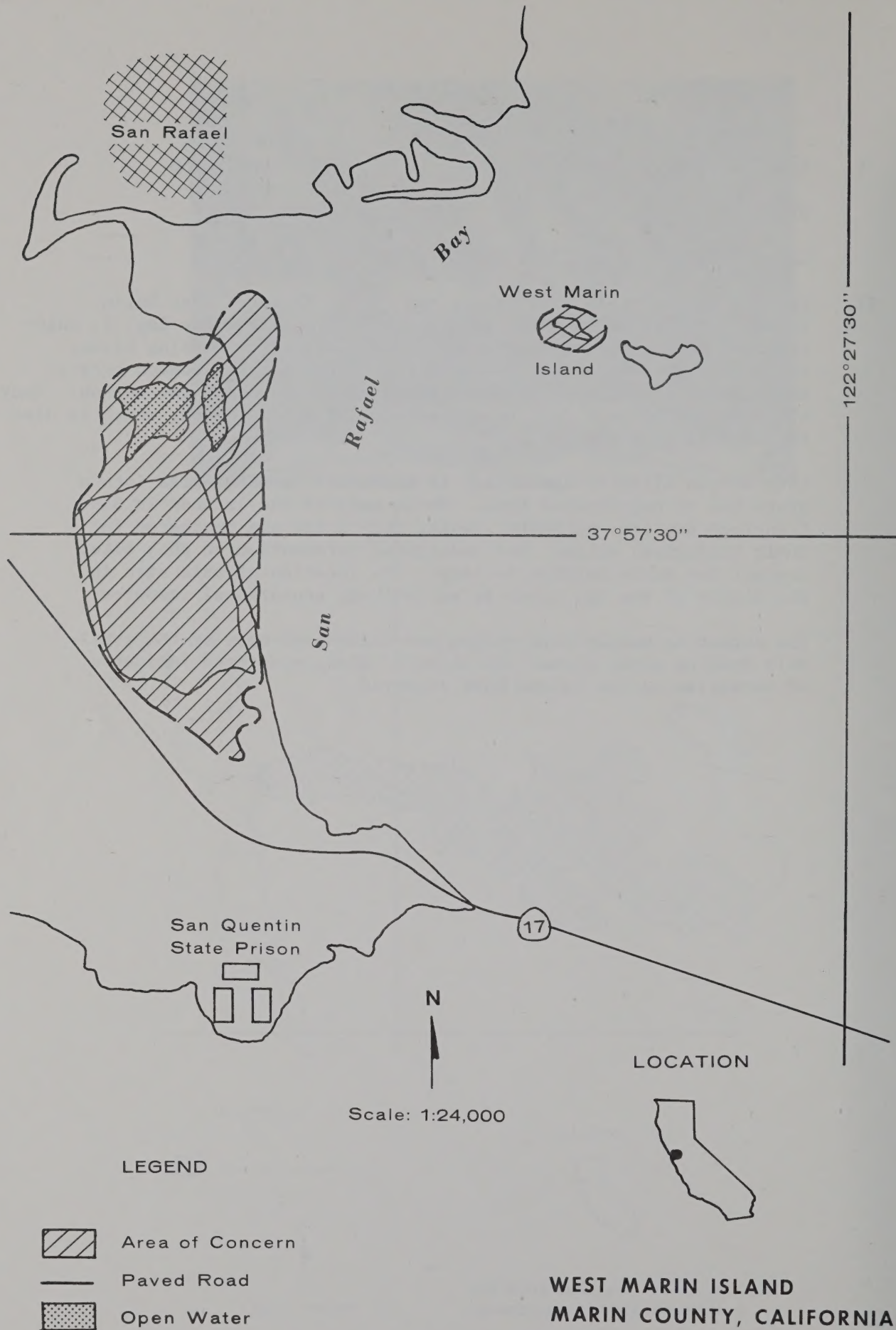
COUNTY: Marin

LEGAL DESCRIPTION: 37°58'N Lat, 122°28'W. Long.

- II. Summary of the Biological Values and Threat Factors: West Marin Island is an isolated three acre island in San Francisco Bay. It maintains an extreme concentration of breeding colonial nesting birds, including 200-400 nesting snowy egrets, fifty nesting common egrets, and many nesting great blue herons and black-crowned night herons. Many of these individuals feed in a nearby tidal mudflat area, which is also included in this nomination.

This unique wildlife assemblage is difficult to categorize into a protected or unprotected type. While many of the islands in San Francisco Bay are publicly owned, only a few are protected for their biological value. For additional information on this site, contact the Marin Audubon Society. The location of this site in the middle of the bay makes it an unlikely educational resource.

The threat is mainly from diking and filling of many of the available feeding areas around San Rafael. Also, scattered incidents of vandalism on the island have occurred.



**WEST MARIN ISLAND
MARIN COUNTY, CALIFORNIA**

I. NAME: Dozier Grasslands and Vernal Pools TOTAL ACRES: 2,800

STATE: California

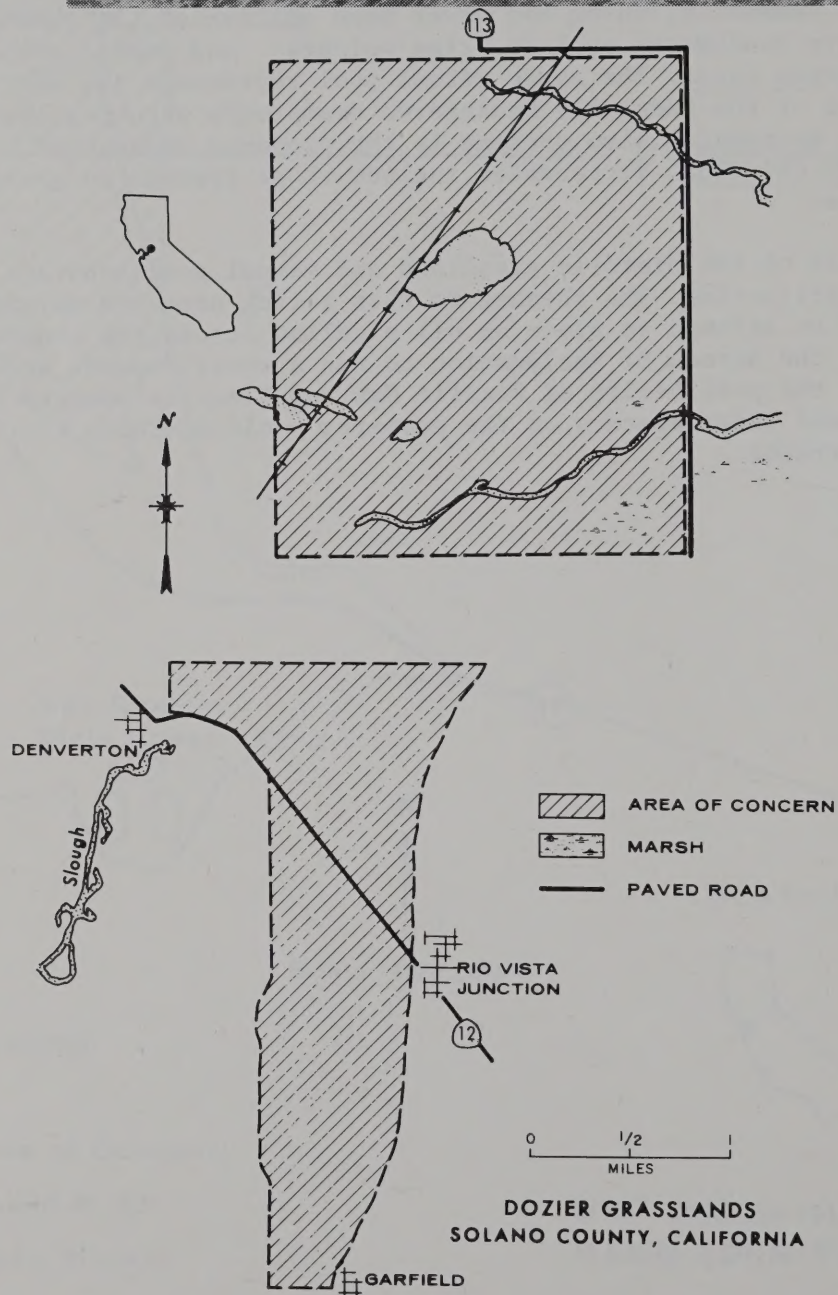
COUNTY: Solano

LEGAL DESCRIPTION: T5N, R1E, Sections 13,14,24,25,26;

T4N, R1E, Sections 4,5,6,8,9,16,17.

II. Summary of Biological Values and Threat Factors: This area exhibits a good example of both grasslands and vernal pool communities. The grassland community, which has never been cultivated, is inhabited by both native bunchgrass such as Stipa pulchra and exotic annuals such as Avena fatua. The large vernal pool represents the sole occurrence of the Federally Endangered Crampton's orcutt grass (Orcuttia mucronata). Also present is the proposed endangered Neostapfia colusana. Vertebrates include those typical to grassland communities.

Very little of the historic grassland and vernal pool habitats have escaped extirpation. The threats to this relict area are multifarious, including an attempt to place an oil pipeline across the property, a plan by the Bureau of Reclamation to run a water channel across the site, and the possibility of Pacific Gas and Electric Company transporting coal laden boxcars on the property's old Southern Pacific railroad tracks.



I. NAME: San Luis Island

TOTAL ACRES: 21,000

STATE: California

COUNTY: Merced

LEGAL DESCRIPTION: T7 and 8S, R9 and 10E.

- II. Summary of Biological Values and Threat Factors: The San Luis Island area represents the last major uncultivated representative of the once ubiquitous grassland-vernal pool ecosystem remaining in the Central Valley. These two habitats are among the rarest types in California. Potential endangered species include San Joaquin kit fox, blunt-nosed leopard lizard and giant garter snake. During high-water periods, large populations of waterfowl, shorebirds and wading birds utilize the area.

The Department of Parks and Recreation is in the process of purchasing part of the property; the landowner is attempting to grade the remaining area for agricultural purposes.

For further information, consult:

Barry, J.W. 1972. The Central Valley Prairie, Department of Parks and Recreation.

Bonnicksen, T. 1974. "San Luis Island, the Last Patch of Eden," Sierra Club Bulletin.

I. NAME: Creighton Ranch

TOTAL ACRES: Unknown

STATE: California

COUNTY: Tulare

LEGAL DESCRIPTION: T21S, R23E, Sections 22,26,27,28,33,34.

- II. Summary of Biological Values and Threat Factors: The land at Creighton Ranch encompasses San Joaquin Valley grassland and wetland associations. The ponds, which are seasonally maintained for irrigation, provide habitat for a tremendous concentration of wading birds. A cursory walking survey revealed hundreds of nesting black-crowned night herons, as well as great blue herons, snowy and great egrets, and American bitterns. Additionally, the site is a likely habitat for the Federally Endangered blunt-nosed leopard lizard and the San Joaquin kit fox.

There are no known threats to this site; the landowner is reported to be sympathetic to preservation of the area.

I. NAME: Brea-Olinda Wilderness TOTAL ACRES: 1,100

STATE: California

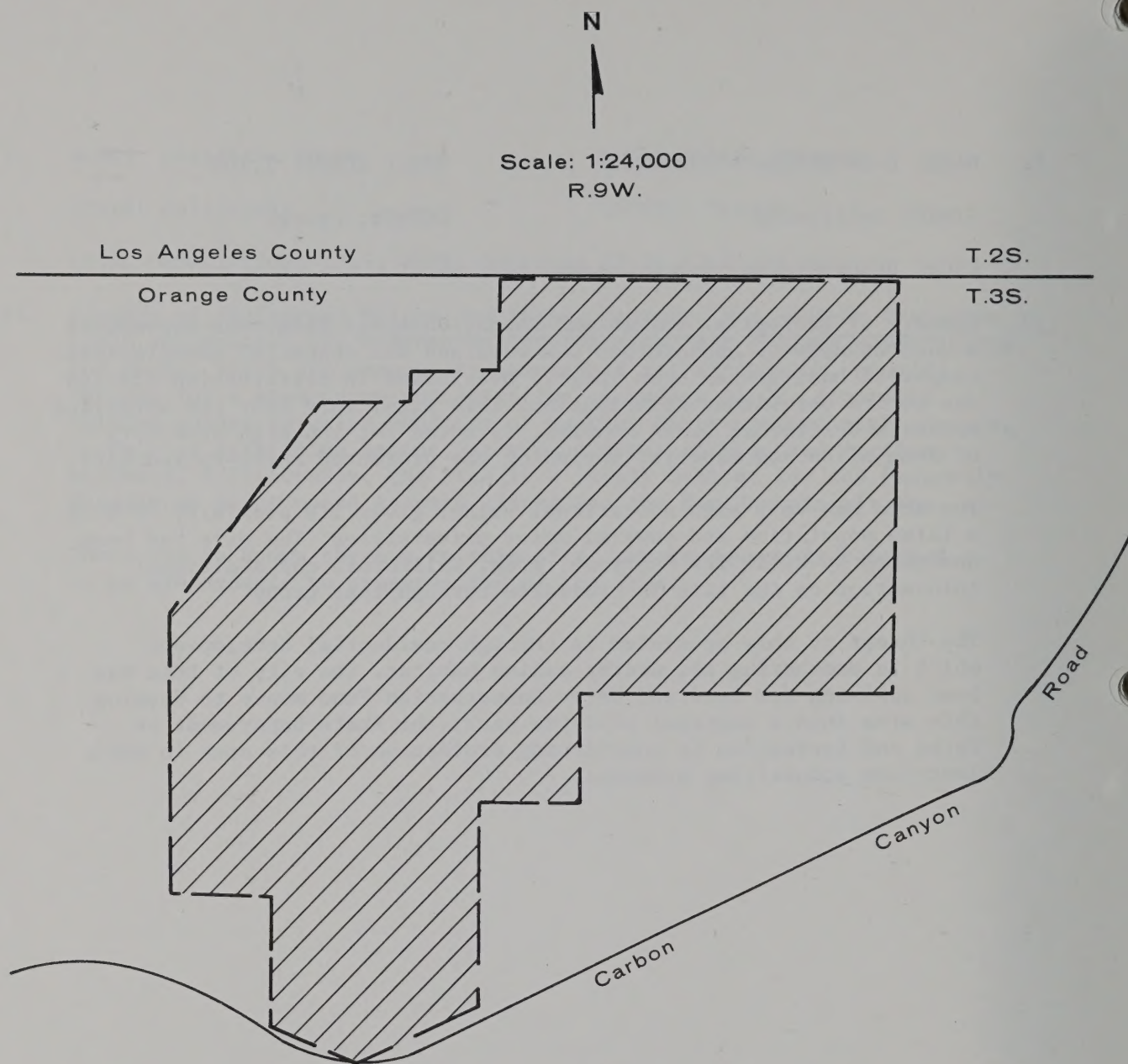
COUNTY: Orange

LEGAL DESCRIPTION: T.3 S., Long. 117° 50'

II. Summary of Biological Values and Threat Factors: This site represents a good example of undisturbed oak woodland and chaparral associations. Chaparral habitat has been largely overlooked in preservation efforts due to its ubiquitous distribution. This site, very near the sprawling southern California urban complex, is noted for its high diversity of song birds and raptors, including the protected white-tailed kite.

The area has very high educational value, given its proximity to both a large population and several major universities. The site has been nominated by Hills for Everyone, Brea, California and additional information on the site is available through that group.

The threat to this ecosystem is through residential development which is smothering all nearby native habitat. The city of Brea has been applying for Land and Water Conservation Fund money to develop this area into a regional wildlife park; the State Department of Parks and Recreation is considering protection of this area in their long-term acquisition schedule.



**BREA-OLINDA WILDERNESS
ORANGE COUNTY, CALIFORNIA**

I. NAME: Valley Vernal Pools

TOTAL ACRES: 311

STATE: California

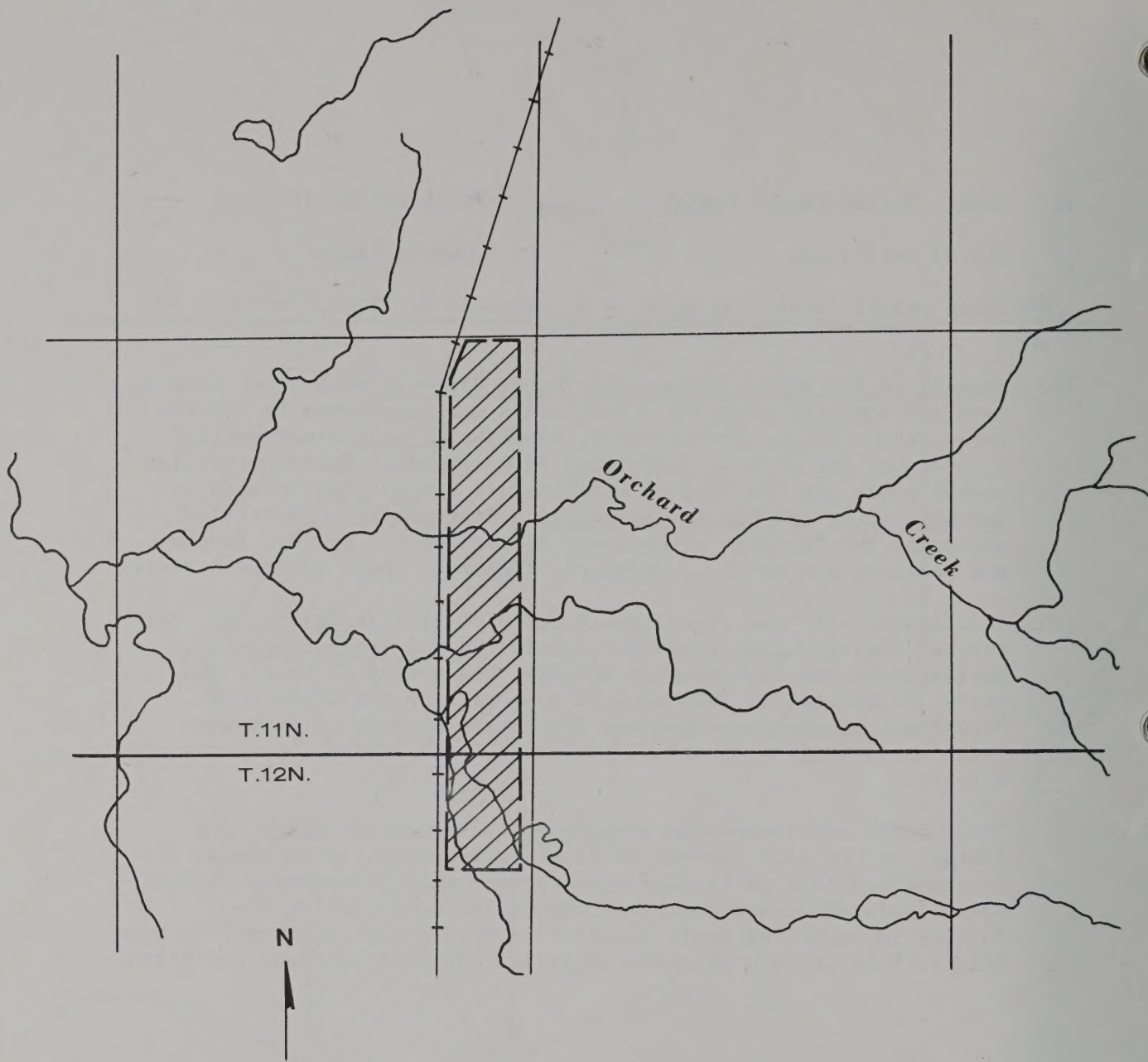
COUNTY: Placer

LEGAL DESCRIPTION: T.11 N, R. 6 E., Sec. 4; T. 12 N.,
R. 6 E., Sec. 33.

- II. Summary of Biological Values and Threat Factors: This site contains a rare and isolated group of vernal pools with an unusually diverse invertebrate fauna. Vernal pools, edaphically maintained wetland ecosystems, are largely restricted to California. These particular vernal pools are the home of various rare annual plants (such as Downingiabella and Mimulus kelloggii) and presently unidentified Copepods. Two "species of concern" in California, prairie falcons and merlins, are noted to regularly winter at these ephemeral pools.

At present, only two vernal pools are protected in California. For further biological information consult: Vernal Pools Symposium, published by the Institute of Ecology, University of California, Davis. Protection of this site is supported by the California Department of Fish and Game and California Academy of Sciences. These pools would make excellent living laboratories for botany classes.

These pools are imminently threatened by the construction of a factory on the site. Vernal pools are very sensitive to change in land use and this particular construction will permanently eliminate these isolated ecosystems. The corporation constructing the factory is known for their interest in open space, so it may be possible to have certain of these pools left in their present condition.



Scale: 1:24,000
R.6E.

LEGEND

-  Area of Concern
-  Stream
-  Railroad
-  Paved Road

LOCATION



VALLEY VERNAL POOLS PLACER COUNTY, CALIFORNIA

I. NAME: Scorpion Rock TOTAL ACRES: 1

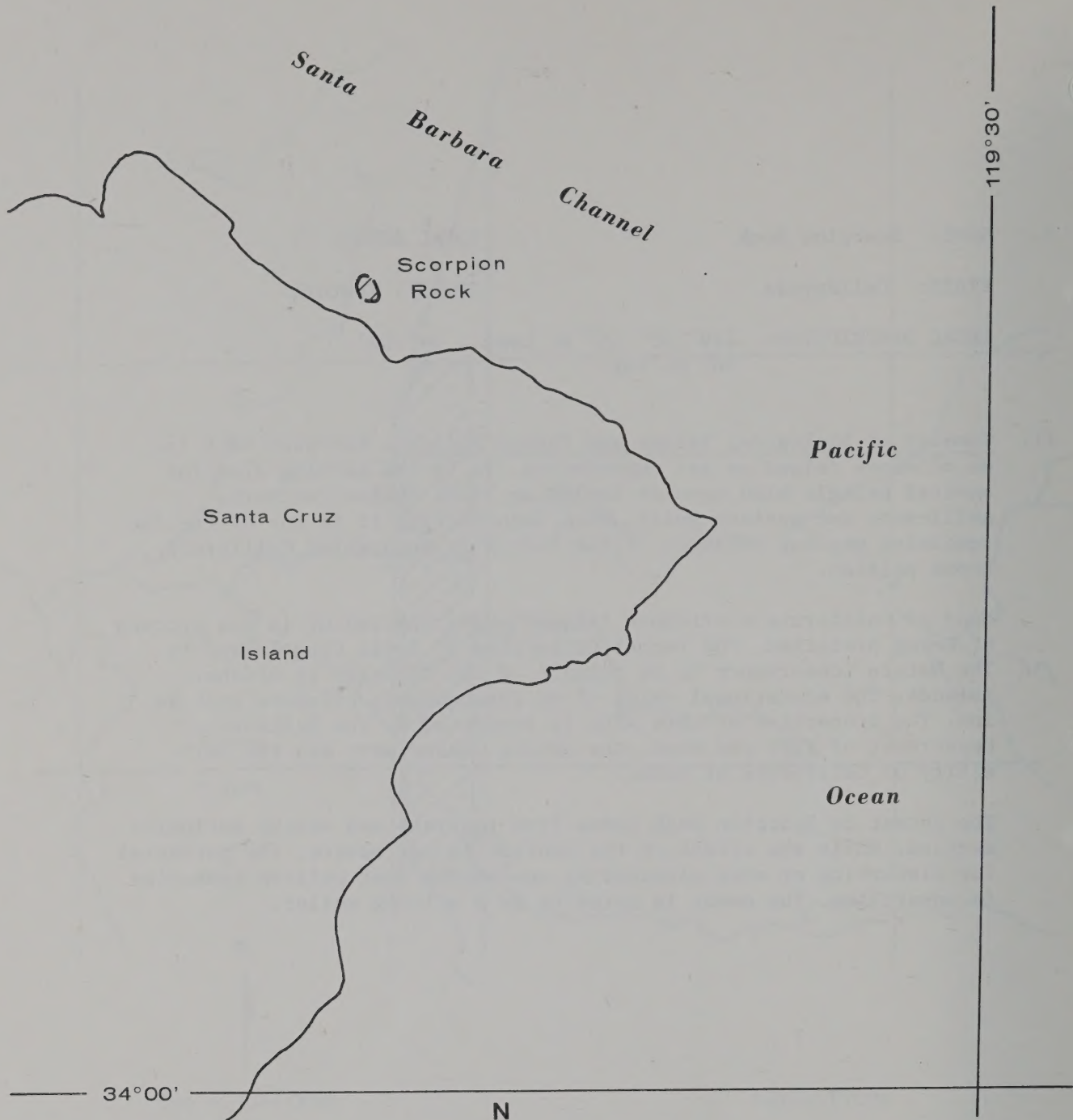
STATE: California COUNTY: Ventura

LEGAL DESCRIPTION: 119° 32' 45" W. Long., 34° 02'
50" N. Lat.

- II. Summary of Biological Values and Threat Factors: Scorpion Rock is an offshore island as yet unprotected. It is the nesting area for several pelagic bird species including black oyster-catchers, guillemots and western gulls. More importantly, it is one of the few remaining nesting colonies of the Federally Endangered California brown pelican.

Many of California's offshore islands are protected or in the process of being protected. The recent protection of Santa Cruz Island by The Nature Conservancy is an example of the interest in offshore islands. The educational value of an inaccessible offshore rock is low. The protection of this site is supported by the California Department of Fish and Game, the Nature Conservancy and the University of California at Davis.

The threat to Scorpion Rock comes from tourists and nearby curiosity seekers. While the effect on the habitat is not severe, the potential for disturbing or even eliminating one of the last pelican rookeries is unsettling. The owner is noted to be a willing seller.



N
Scale: 1:40,000

LOCATION



LEGEND



Area of Concern

**SCORPION ROCK
SANTA BARBARA COUNTY, CALIFORNIA**

I. NAME: Afton Canyon

TOTAL ACRES: 200

STATE: California

COUNTY: San Bernardino

LEGAL DESCRIPTION: T11N, R6E.

- II. Summary of Biological Values and Threat Factors: The Mojave River surfaces in Afton Canyon and provides a year-round source of water for this desert riparian oasis. A large number of rare or list-of-concern species utilize Afton Canyon during either migration or breeding, including Bell's vireo, summer tanagers, vermillion flycatchers and numerous raptors. Also present are proposed endangered desert tortoise, a relict population of western pond turtles, and bighorn sheep.

Much of this area is protected as an Area of Critical Environmental Concern by the Bureau of Land Management, although enforcement may be a problem.

I. NAME: El Segundo Dunes

TOTAL ACRES: 245

STATE: California

COUNTY: Los Angeles

- II. Summary of Biological Values and Threat Factors: Shifting dunes at the Los Angeles International Airport provide the last remaining habitat for the Federally Endangered El Segundo blue butterfly (Shijimiaeoides battoides allyni). This species is dependent on resident buckwheat species (Eriogonum ssp.).

Los Angeles Airport may decide to expand their operations onto these properties, thus threatening the continued existence of the El Segundo blue. For a more detailed biological evaluation, consult: Arnold, R.N. 1977. "Status of Six Endangered California Butterflies", Department of Fish and Game unpublished report.

I. NAME: Lake Norconian

TOTAL ACRES: 450

STATE: California

COUNTY: Riverside

LEGAL DESCRIPTION: T7W,R3S.

- II. Summary of Biological Values and Threat Factors: Lake Norconian and the surrounding undeveloped lands provide a migratory stopover and feeding area for waterfowl and several species of concern, including common yellowthroat, Cooper's hawk, red-shouldered hawk, golden eagle, burrowing owl, white pelican and, rarely, white-faced ibis. It is also reported that mojave chub and desert pupfish have been introduced to the lake.

Development is quickly surrounding this area; as the buffer area becomes smaller, the diversity of species will reciprocally drop. The lake itself is surplus Federal property released by the U.S. Navy and may be protected in the future by the California Department of Fish and Game.

I. NAME: Gorman Post Road

TOTAL ACRES: 3,000

STATE: California

COUNTY: Kern

LEGAL DESCRIPTION: Unknown.

- II. Summary of Biological Values and Threat Factors: These hills are reported to have an excellent representative spring wildlife display, characteristic of the once ubiquitous San Joaquin Valley grassland habitat. Site is not known to be inhabited by rare animals or plants, although the plant association itself has become rare.

There are no known immediate threats to the site. Cattle grazing, which currently takes place, is thought to be conducive to preservation of the wildflowers.

I. NAME: Upper Santa Clara River TOTAL ACRES: 312
STATE: California COUNTY: Los Angeles
LEGAL DESCRIPTION: T4N, R13W, Section 11.

II. Summary of Biological Values and Threat Factors: This stretch of the Santa Clara River supports the best remaining population of the Federally Endangered unarmored threespine stickleback (Gasterosteus aculeatus williamsoni). The surrounding riparian vegetation grades into coastal sage scrub.

The threats to the fish population include channelization, which would both eliminate essential slow-moving reaches and allow introgression of G.a. microcephalus resulting in genetic swamping of G.a. williamsoni. The landowner is thought to be sympathetic to preservation efforts. For further information, see: Baskin, J. "Survey of the Unarmored Threespine Stickleback (Gasterosteus aculeatus williamsoni) in the Upper Santa Clara River Drainage", a report submitted to the U.S. Fish and Wildlife Service.

I. NAME: Rubber Boa Habitat

TOTAL ACRES: 20,000

STATE: California

COUNTY: Riverside

LEGAL DESCRIPTION: T4S, R3E, Sections 19,20,21,22,23,26,27,28,29,
30,31,32,33,34,35; T5S,R3E, Sections 2,3,4,5,
8,9,10,11,14,15,16,17,19,20,21,22,23,24,25,26,
T5S,R2E, Sections 23,24.

- II. Summary of Biological Values and Threat Factors: This large tract of yellow pine to sub-alpine forest covers the major habitat of the State listed Rare southern rubber boa (*Charina bottae umbratica*). The general area is inhabited by the sensitive species limited to these types of associations such as peregrine falcon, golden eagle, mountain lion, bobcat, and over 30 species of reptiles and amphibians.

Threats to the natural values on private properties within this largely publicly owned area are from residential development.

I. NAME: Deer Creek

TOTAL ACRES: 32,000

STATE: California

COUNTY: Tehama

LEGAL DESCRIPTION: T24N, R1W; T25N, R1W; T24N, R1E; T25N,
R2E; T26N, R2E, T26N, R3E.

- II. Summary of Biological Values and Threat Factors: Deer Creek represents one of the few Sacramento River tributaries without a dam or major water diversion. It is inhabited by the full complement of native fishes, including runs of Chinook salmon. The sycamore-cottonwood lower riparian stretches are seasonally used by Federally Endangered southern bald eagles, State listed Rare yellow-billed cuckoos, and proposed endangered Bell's vireos. Also, the area has high cultural value as the home of Ishi, California's last wild Indian.

There has been some damage to the biological and cultural resource from off-road-vehicles and vandals. There has been work towards creating an Ishi Country Wilderness Area.

I. NAME: Meadow Creek

TOTAL ACRES: 47

STATE: California

COUNTY: San Luis Obispo

LEGAL DESCRIPTION: AP.Ns 60-11-36; 60-11-37; 60-11-45; 60-11-31;
60-471-04.

- II. Summary of Biological Values and Threat Factors: This small tract of natural habitat within Grover City runs a gradient from freshwater wetland to riparian woodland to coastal sage scrub. Wildlife present are those typically inhabiting such associations. Noteworthy is the northern-most occurrence of the rare shagbark manzanita (Arctostaphylos rudis) at this site.

The threat to the Meadow Creek area stems from proposed residential development which will replace native vegetation and increase sedimentation.

I. NAME: Fiscalini Ranch

TOTAL ACRES: 380

STATE: California

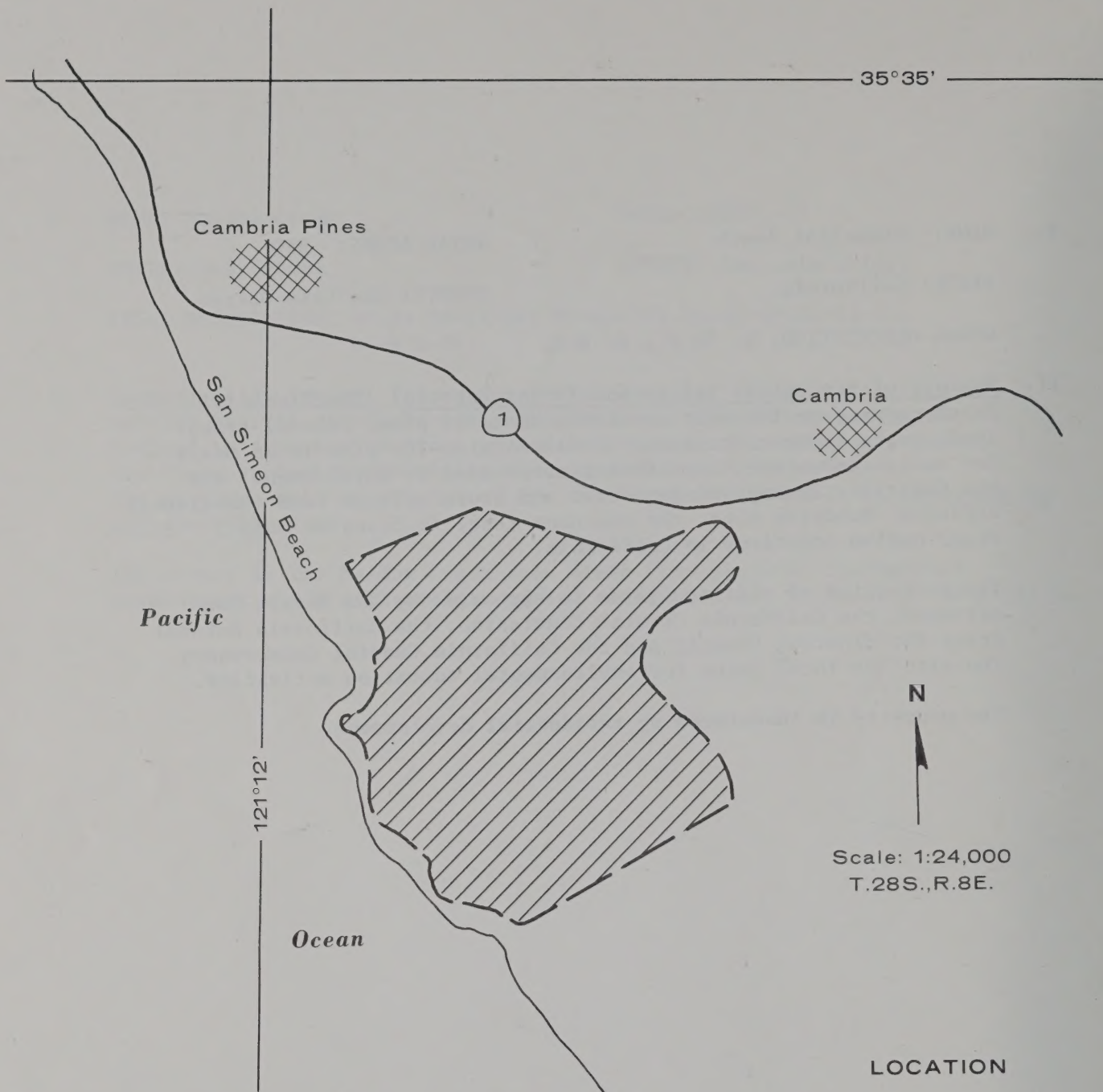
COUNTY: San Luis Obispo

LEGAL DESCRIPTION: T. 28 S., R. 8 E.

II. Summary of Biological Values and Threat Factors: The Fiscalini Ranch represents the only remaining Monterey pine, coastal grassland, rocky tidepool transect in California. The site is an oasis for native fauna and flora (being surrounded by development) and the Federally Endangered sea otter and brown pelican feed immediately offshore. Monterey pine, the dominant tree, is found at only 2 other native locations in California.

The protection of this ecosystem is supported by The Nature Conservancy, the California Coastal Commission, the California Natural Areas Coordinating Council and the California Coastal Conservancy. The site has local value for environmental education activities.

The property is threatened by residential development.



LEGEND

-  Area of Concern
-  Paved Road

FISCALINI PROPERTY
SAN LUIS OBISPO COUNTY, CALIFORNIA

I. NAME: Volcan Mountain

TOTAL ACRES: 12,000

STATE: California

COUNTY: San Diego

LEGAL DESCRIPTION: Unknown.

II. Summary of Biological Values and Threat Factors: This nomination encompasses a large area running from creosote bush scrub to yellow pine habitats near the town of Julian. Spotted owls are reported to be nesting on the property.

This property, long a cattle ranch owned by the Starr-Rutherford Cattle Company, was for sale recently to "discriminating investors" for eventual residential development.

I. NAME: Goose Lake TOTAL AREA: 194sq. miles

STATE: California COUNTY: Modoc

LEGAL DESCRIPTION: T46,47,48S, R13,14E.

II. Summary of Biological Values and Threat Factors: Goose lake is a large, alkaline lake inhabited by endemic fish and seasonally by abundant waterfowl. Among the resident fishes are tui chub, Goose Lake suckers and dwarf sea lamprey.

It is not known whether threats to this ecosystem exist.

I. NAME: Pit River Canyon

TOTAL ACRES: Unknown.

STATE: California

COUNTY: Modoc

LEGAL DESCRIPTION: T41,42N, R7,8E.

- II. Summary of Biological Values and Threat Factors: This 26 km stretch of Pit River and Turner Creek represents some of the least disrupted examples of native fish fauna in the drainage, including the State listed Endangered Modoc sucker (Catostomus microps), hardhead, and possibly the listed Rare rough sculpin (Cottus asperimus).

The proposed Allen Camp Dam will flood the canyon.

I. NAME: Humboldt Lagoons

TOTAL ACRES: 4,221

STATE: California

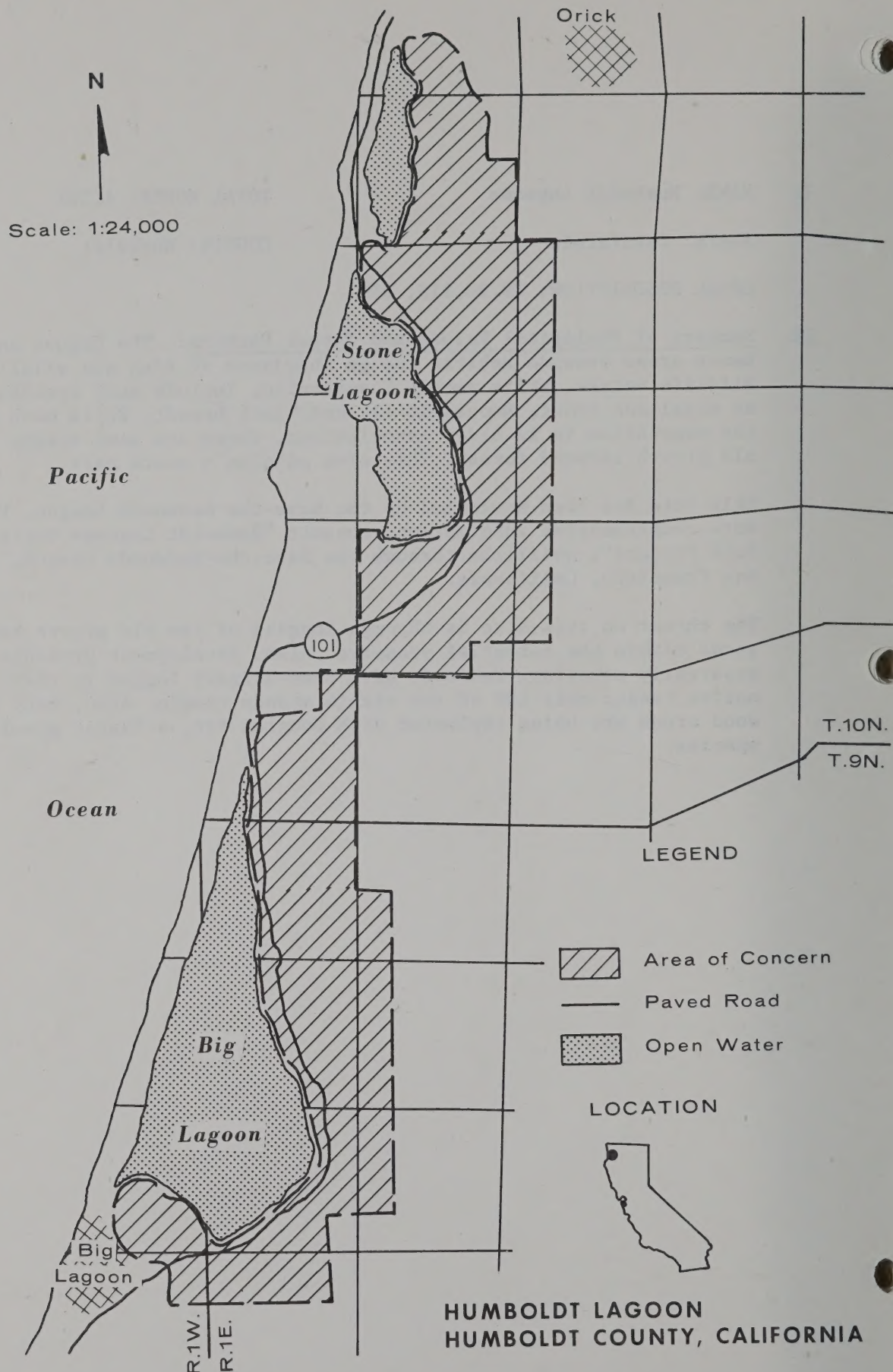
COUNTY: Humboldt

LEGAL DESCRIPTION: T9,10,11N, R1E.

- II. Summary of Biological Values and Threat Factors: The Lagoon and marsh areas provide habitat for an abundance of fish and wildlife. Wildlife values, while poorly inventoried, include such species as steelhead trout, Roosevelt elk and black brandt. While much of the vegetation is in alder associations, there are some stands of old growth redwood forest. This area adjoins a state park.

This site has been nominated by the Save-the-Redwoods League. For more comprehensive information, consult "Humboldt Lagoons State Park Project", available through the Save-the-Redwoods League, San Francisco, California.

The threat to this site is through logging of the old growth redwoods within the potential preserve. Also, development pressure is apparently mounting. Redwoods have been largely logged in their native range; only 10% of the virgin stands remain. Also, many redwood areas are being replanted with Douglas fir, a faster growing species.



I. NAME: Las Tunas Grassland

TOTAL ACRES: 12

STATE: California

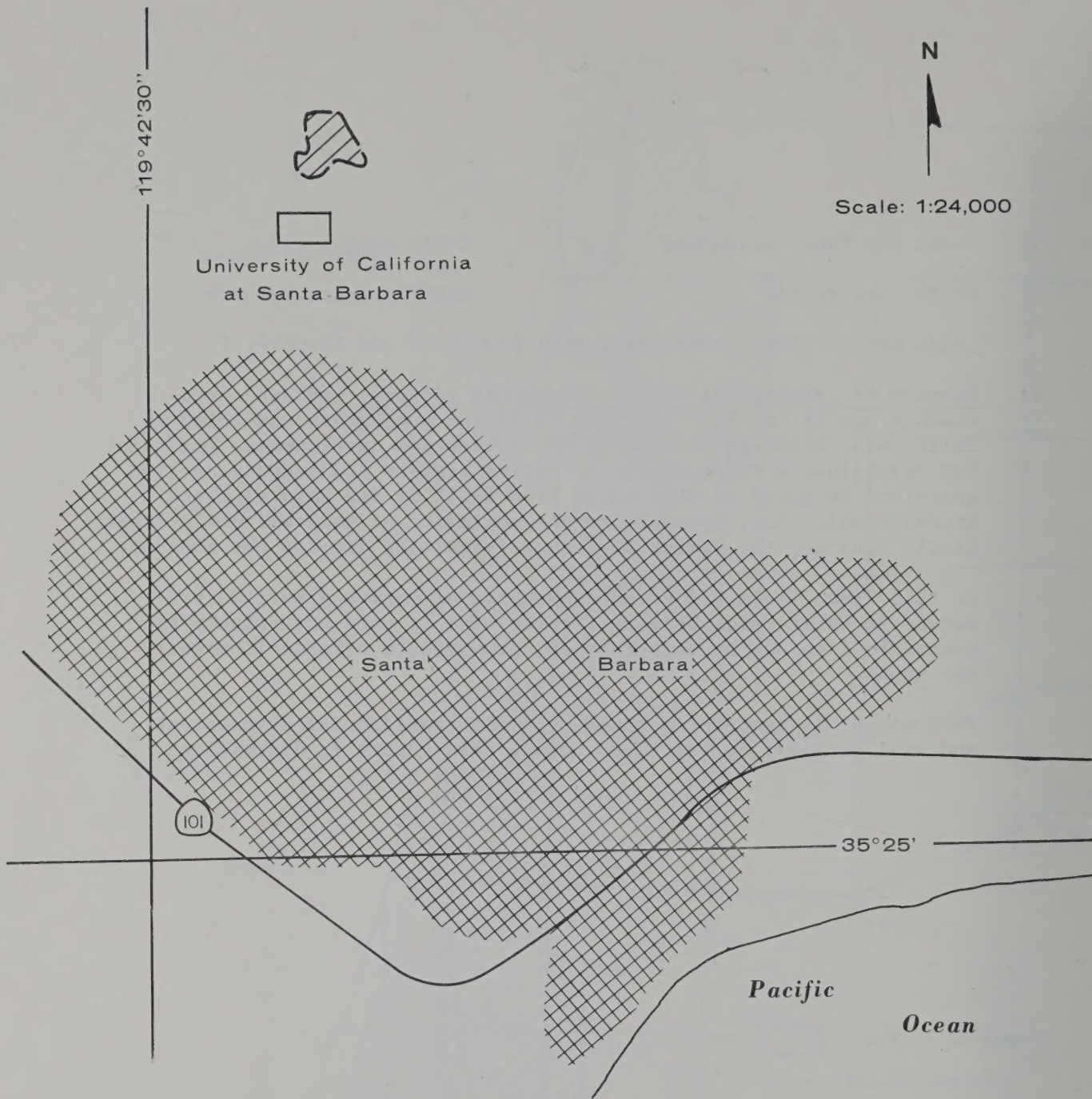
COUNTY: Santa Barbara

LEGAL DESCRIPTION: assessors parcel #19-072-4 and 19-081-1,2.

- II. Summary of Biological Values and Threat Factors: Las Tunas represents one of the best examples of native bunchgrass remaining in California. Although surrounded by residential development, the site has maintained a 90% coverage of native grasses and annuals. Native grassland is noted as extirpated from 99.5% of its natural range in California. Due, however, to the seclusion of this site from other biotic sources, the vertebrate fauna is neither diverse nor abundant.

At this time, there are no good examples of native grassland preserved in California. This particular site is used extensively by botanists from nearby universities, providing a natural laboratory for study.

This parcel is imminently threatened with residential development and will probably be destroyed before this report is distributed.



**LAS TUNAS GRASSLANDS
SANTA BARBARA COUNTY, CALIFORNIA**

I. NAME: McNamee's Cave

TOTAL ACRES: 3

STATE: California

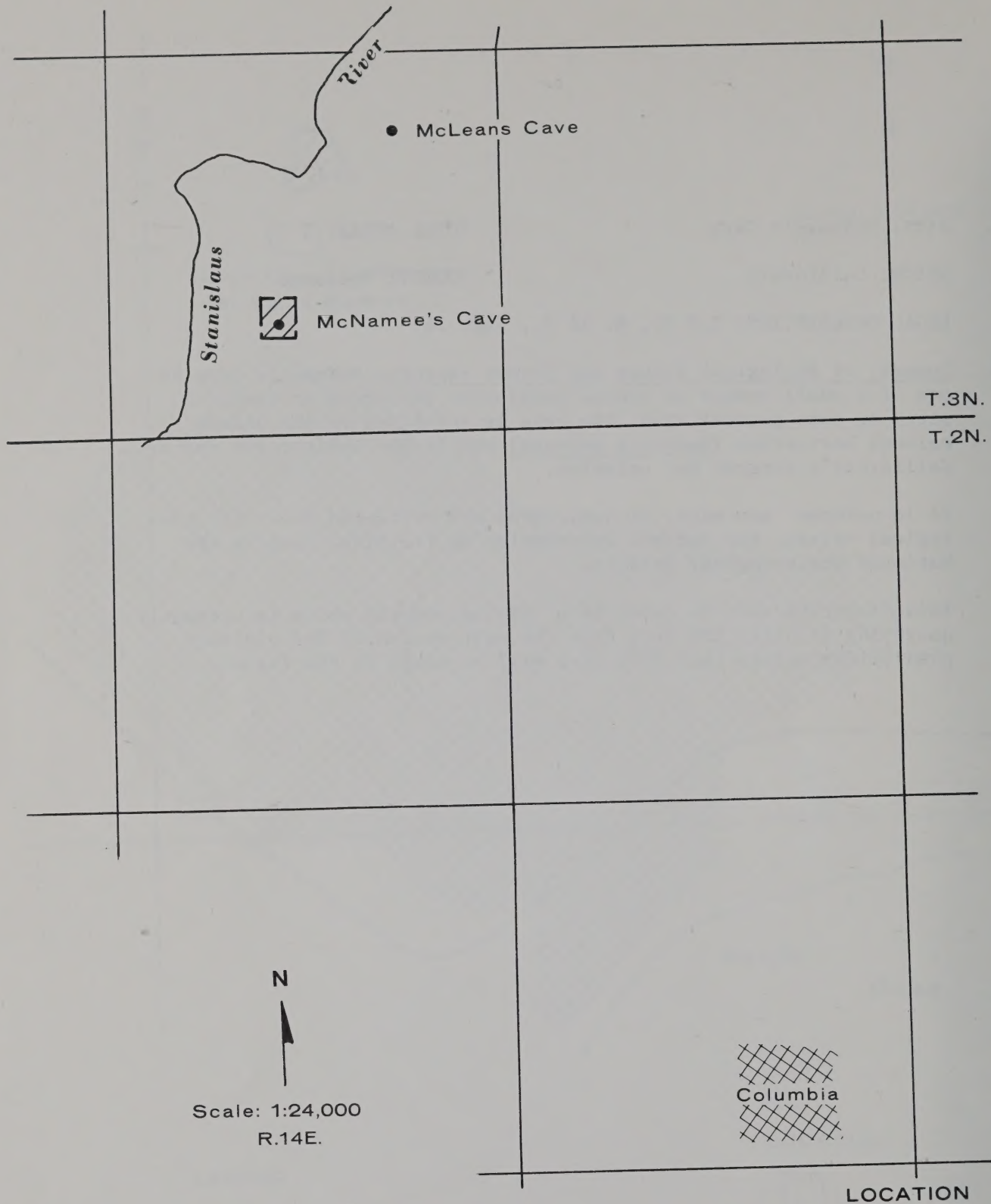
COUNTY: Tuolumne

LEGAL DESCRIPTION: T.3 N., R. 14 E., Sec. 34.

- II. Summary of Biological Values and Threat Factors: McNamee's Cave is one of a small number of closed ecosystems occurring at isolated sites in this general area. The cave is inhabited by the unique melones harvestman (Banksula melones) and is the habitat for one of California's largest bat colonies.

It is unknown how many, if any, caves are protected for their biological values. For further information on the site, contact the National Speleological Society.

This limestone cave is owned by a mining company which is presently quarrying dolomite 500 feet from the cave entrance. The distinct possibility exists that this cave will be mined in the future.



LEGEND



Area of Concern

LOCATION



McNAMEE'S CAVE
TUOLUMNE COUNTY, CALIFORNIA

I. NAME: Heater Cave

TOTAL ACRES: Unknown.

STATE: California

COUNTY: Calaveras

LEGAL DESCRIPTION: Unknown.

- II. Summary of Biological Values and Threat Factors: Heater Cave occurs in a limestone formation and is inhabited by an undescribed variety of harvestman (Banksula sp). The cave is owned by a mining company and could be destroyed in the process of limestone extraction.

APPENDIX I

Contributing Resource Agencies, Conservation Groups, Universities and Individuals

Contributing Persons

Jim St. Amant
Daniel Anderson
Richard Arnold
Stephen F. Bailey
James Barry
Bob Barnes
Kristin Berry
Glenn Black
Peter Bloom
Lawrence J. Bott
B.G. Bowen
Charles Brown
Sterling Bunnell
B.R. Borage
Henry L. Chabot
Warner Chabot
Dan Cheatham
Owen Dell
John B. Dewitt
Gilbert M. Dominguez
Joe Dowhan
james Fiack
Peter Green
Tom Griggs
William Goodlee
L. E. Hair
Barbara Hill
Leslie Hood
Frank Hoover
John E. Hummel
Ron Johansen
Sally Jue
Monty Knutson
Gail Kobetich
Stephen Layman

Laurie Marcus
James R. Marston
Rhoda Martyn
Dick Martyr
Wilbur Mayhew
Steve McCormick
Bob McGill
James McMiken
Jim McMillan
Joe Medeiros
H.W. Meyer
Michael Miller
Garrison Mitchell
Peter Moyle
David Myers
Ken Norris
Glen Olson
Edwin Pister
Lisa Paradise
John Pike
Clint Powell
Anne Sands
Shoker Sasaki
Peter Seligman
Robert and Theresa Sholars
John Speth
Richard A. Spotts
Jean Starkweather
Pat Stebbins
Tom Stone
Shirley Taylor
Joe Tieger
Robert Voeks
Jan White
Ray E. Williams

Contributing Agencies, Conservation Groups and Universities

Amigos de Bolsa-Chica
Army Corps of Engineers
Bureau of Land Management
California Department of Fish and Game
College of the Redwoods
California Natural Areas Coordinating Council
California State Parks and Recreation
California Native Plant Society
California Coastal Commission
California Natural Resource Federation
College of the Desert
California Coastal Conservancy
Committee for the Preservation of Santa Barbara's Grassland
California Natural Land and Water Reserve System
Committee for the Preservation of Tule Elk
California Academy of Science
Desert Fishes Council
Desert Protective Council
Department of Water Resources
Davis Audubon
Environmental Center of San Luis Obispo County
Fund for Animals
Friends of the River
Golden West College
Golden Gate Audubon Society
Golden Valley Ecological Society
Help the Tule Elk
Hills for Everyone
Institute for Tidal Studies
International Bird Rescue
Kern Audubon Society
Land Trust of Santa Cruz
Los Angeles Audubon Society
Los Angeles County Museum
Lassen Community College
Mt. San Antonio College
Morro Coast Audubon Society
Marin Audubon Society
National Audubon Society
National Wildlife Federation
National Speleological Society

Contributing Agencies, Conservation Groups and Universities

Napa-Solano Audubon Chapter
Parks Commission of Santa Barbara
Reedley College
Rio Hondo College
Riverland Council
Sierra Club
Save the Redwoods League
Santa Barbara Botanical Garden
Santa Barbara City College
Santa Cruz Fish and Game Advisory Commission
Sea and Sage Audubon Society
South Fork Watershed Association
The Nature Conservancy
Tulare County Audubon Society
Trust for Public Lands
University of California, Riverside
University of California, Davis
University of California, Berkeley
University of California, Santa Cruz
Xerces Society

APPENDIX II

Wildlife of Concern

The following species are listed on either the Federal or State Endangered Species List, or are on the Species of Special Concern List. Those species which are known to complete part or all of their life cycles within one or more of the previously discussed Unique Ecosystems are preceded by an asterisk.

BIRDS

- *American White Pelican-(Pelecanus erythrorhynchus)
- Ashy Storm Petrel-(Oceanofroma melania)
- * Barrow's Goldeneye-(Bucephala islandica)
- * Bell's Vireo-(Vireo bellii)
- * Bank Swallow-(Riparia riparia)
- * Belding's Savannah Sparrow-(Passerculus sandwichensis beldingi)
- Black Storm Petrel-(Oceanofroma melania)
- Black Swift-(Cypseloides niger)
- Brown-crested Flycatcher-(Myiarchus tyrannulus)
- * Burrowing Owl-(Athene cunicularia)
- * California Least Tern-(Sterna albifrons browni)
- * California Clapper Rail-(Rallus longirosteris obsoletus)
- * California Yellow-billed Cuckoo-(Coccyzus americanus occidentalis)
- * Common Loon-(Gavia immer)
- * Cooper's Hawk-(Accipiter cooperi)
- * Common Yellow Throat-(Geothlypos trichas)
- * California Condor-(Gymnogyps californianus)
- Common Flicker-(Gilded)-(Colaptes auratus mearnsi)
- * Double-crested Cormorant-(Phalacrocorax auritus)
- Elf Owl-(Micrathene whitneyi)
- Elegant Tern-(Sterna elegans)
- Fulvous Whistling Duck-(Dendrocygna bicolor)
- Fork-tailed Storm Petrel-(Oceanodroma furcata)
- * Golden Eagle-(Aquila chrysaetos)
- Great Gray Owl-(Strix nebulosa)
- Gray Vireo-(Vireo vicinior)
- Gila Woodpecker-(Centurus uropygialis)
- Gray-headed Junco-(Junco caniceps)
- Harlequin Duck-(Histrionicus histrionicus)
- Harris Hawk-(Parabuteo unicinctus)
- Hepatic Tanager-(Piranga flava)
- * Least Bittern-(Ixobrychus exilis)
- Light-footed Clapper Rail-(Rallus longirostris levipes)
- * Long-eared Owl-(Asio otus)

Marbled Murrelet- (Brachyramphus marmoratum)
 Gull-billed Tern- (Gelochelidon nilotica)
 *Northern Harrier (Marsh Hawk)- (Circus cyaneus)
 *Osprey- (Pandion haliaetus)
 *Prairie Falcon- (Falco perigrinis anatum)
 *Peregrine Falcon- (Falco perigrinis anatum)
 Purple Martin- (Progne subis)
 Ruffed Grouse- (Bonasa unbellus)
 Red Cardinal- (Richmondia cardinalis)
 *Sandhill Crane- (Grus canadensis)
 San Clemente Sage Sparrow- (Amphispiza belli clemetae)
 Santa Barbara Song Sparrow- (Meolospira melodis graminea)
 *Short-eared Owl- (Asio flammeus)
 Sharp-tailed Grouse- (Pediacetes phasianellus)
 *Snowy Plover- (Charadrius alexandrinus)
 *Spotted Owl- (Strix occidentalis)
 *Southern Bald Eagle- (Heliaetus eucocephalus eucocephalus)
 Summer Tanager- (Piranga rubra)
 *Swainson's Hawk- (Buteo swainsoni)
 Tufted Puffin- (Lunda cirrhata)
 Vermilion Flycatcher- (Pyrocephalus rubinus)
 Virginia's Warbler- (Vernivora virginiae)
 *White-faced Ibis- (Plegadis chihi)
 Willow Flycatcher- (Empidonax triallii)
 *Yellow Warbler- (Dendroica petechia)
 Yuma Clapper Rail- (Rallus longirostris yumanensis)
 Yellow Rail- (Conturicops noveboracensis)

MAMMALS

California Bighorn Sheep- (Ovis canadensis californiana)
 Fresno Kangaroo Rat- (Dipodomys nitratoide exilis)
 Island Fox- (Urocyon littoralis)
 Guadalupe Fur Seal- (Arctocephalus townsendi)
 Morro Bay Kangaroo Rat- (Dipodomys heermanni morroensis)
 *Peninsular Bighorn Sheep- (Ovis canadensis cremnobates)
 *San Joaquin Kit Fox- (Vulpes macrotis mutica)
 Salt Marsh Harvest Mouse- (Reithrodontomys raviventris)
 *Southern Sea Otter- (Enhydra lutris nereis)
 Stephens Kangaroo Rat- (Dipodomys stephensi)

AMPHIBIANS

Black Toad- (Bufo exsul)
Desert Slender Salamander- (Batrachoseps aridus)
Kern Canyon Slender Salamander- (Batrachoseps simatus)
Limestone Salamander- (Hydromantes brunus)
Santa Cruz Long-Toed Salamander- (Ambystoma macrodactylum croceum)
Shasta Salamander- (Hydromantes shastae)
Siskiyou Mountain Salamander- (Plethodon stormi)

FISH

Bonytail- (Gila elegans)
Cottonball Marsh Pupfish- (Cyprinodon milleri)
Colorado Squawfish- (Ptychocheilus lucius)
Humpback Sucker- (Xyrauchen texanus)
Lahonton Cutthroat Trout- (Salmo clarki henshawi)
Lost River Sucker- (Xatostomus luxatus)
* Owens River Pupfish- (Cyprinodon radiosus)
* Owens Tui Chub- (Gila bicolor snyderi)
* Modoc Sucker- (Catostomus microps)
* Mohave Chub- (Gila mohavensis)
Rough Sculpin- (Cottus asperimus)
Shortnose Sucker- (Chasmistes brevirostris)
Thicktail Chub- (Gila crassicauda)
Unarmoured Threespine Stickleback- (Gasterosteus aculeatus williamsoni)
Little Kern Golden Trout- (Salmo aquabonita whitei)
Piute Cutthroat Trout- (Salmo clark seleniris)

INVERTEBRATES

* El Segundo Blue Butterfly- (Shiimiaeoides battoides allyni)
Langes Metalmark Butterfly- (Apodemia mormo langei)
* Lotis Blue Butterfly- (Lucaeides argyrognomon lotis)
* San Bruno Elfin Butterfly- (Callophrys mossii bayensis)
Smith's Blue Butterfly- (Shiimiaeoides enoptes smithi)

REPTILES

- Alameda Striped Racer- (Masticophis lateralis euryxanthus)
*Blunt-Nosed Leopard Lizard- (Crotaphytus silus)
Giant Garter Snake- (Thamnophis couchi gigas)
Island Night Lizard- (Klauberina riversiana)
San Francisco Garter Snake- (Thamnophis sitralis tetrataenia)
*Southern Rubber Boa- (Charina bottae umbratica)

VASCULAR PLANTS

- Antioch Dunes Evening Primrose- (Oenothera deltoides ssp. howellii)
Contra Costa Wallflower- (Erysimum capitatum var. angustatum)
*Crampton's Orcutt Grass- (Orcuttia mucronata)
Eureka Dune Grass- (Swallenia alexandrae)
San Clemente Broom- (Lotus scoparius ssp. traskiae)
San Clemente Island Bushmallow- (Malacothamnus clementinus)
San Clemente Indian Paintbrush- (Castilleja grisea)
San Clemente Island Larkspur- (Delphinium kinkiense)
San Diego Pogogyne- (Pogogyne abramsii)
Salt Marsh Birds Beak- (Cordylanthus maritimus ssp. maritimus)
Santa Barbara Island Liveforever- (Dudleya traskiae)
McDonald's Rock Grass- (Arabis macdonaldiana)

PHOTO CREDITS

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